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ABSTRACT

This guide for teacher inservice training is focused on the concept of Ekistics--the study of man in his environment. The strategies presented are based on generic inservice culminating in a management planning model, purposefully generic to all inservice and intended to add support to the personnel who would be designing inservice. The steps to be followed start with planning functions of an inservice management committee and progress through the implementation functions. The three sections of the guide are the planning section, the syllabus for an Ekistics inservice training program, and a resource section. The section on planning includes goals and objectives, solution strategies, and a planning model. The syllabus is broken into three sections, motivational strategies, concept development strategies and classroom strategies. The multidisciplinary activities in these three sections provide opportunity for observation, discussion, problem solving, and field trips. The resource section includes the names, mailing addresses, and price of Ekistics-related materials; these include books, 16mm films, filmstrips, film loops, tapes, transparencies, slides, and study prints. (Author/TK)

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U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

GUIDE FOR TEACHER INSERVICE IN

EKISTICS



A STUDY OF MAN IN
HIS ENVIRONMENT

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GUIDE FOR TEACHER INSERVICE IN

EXISTICS

A STUDY OF MAN IN HIS ENVIRONMENT

OFFICE OF THE LOS ANGELES COUNTY SUPERINTENDENT OF SCHOOLS

JANUARY 1974
LACO 163

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FOREWORD

Through the centuries we have been discovering new and diverse facts about our earth home and adding an enormous amount of information to our knowledge base about our total environment. Until recently, however, some teachers and curriculum development personnel have not included conservation, environment and ecology as part of the required teaching program. In 1968 the California Legislature passed laws **REQUIRING** the teaching about resources and an understanding of man's relationship to his environment in grades one through twelve.

The California Department of Education, Conservation Education Service, undertook the task of formulating guidelines for conservation education in California schools. Dr. Paul F. Brandwein, President, Center for the Study of Instruction, San Francisco was commissioned to develop the guidelines. Early in his task he found a new name was needed for the area of instruction to be covered in his work, and "Ekistics," the study of man in his environment, was adopted. In explaining the term, Dr. Brandwein stated, "Ekistics is that community of discourse that proposes to study that area of knowledge, those concepts and values which bind man to his environment. It is based on the recognition by man of his dependence on and interdependence with the environment and for his responsibility for maintaining a culture which sustains a sanative environment for all those who live or will live."

Conservation, combined with environmental education and ecology, provides an interdisciplinary approach to learning which is identified as Ekistics. This guide is offered in the hope that it will result in responsive action from administrators, teachers, and students in schools of our area that will bring about involvement in wise management of resources, human and natural, and protection of our heritage.

The original guide was produced under a grant awarded by the California State Department of Education Conservation Education Services (GES-3) dated June 30, 1972.

RICHARD M. CLOWES
Superintendent of Schools

Approved by Los Angeles County Board of Education

Dr. Daniel L. Towler, President
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The following persons have been responsible for creating this guide for teacher inservice in Eksiutics:

Idea Development Group

Sharon Burnett, Teacher
Harvey Good, Professor
Dwight Hanawalt, Ed. D., Professor
Cornell Harvell, Education Specialist
Charles Hudson, Education Specialist
David Marqua, Recreation Specialist
Robert Neher, Ph. D., Proiessor
Charles Subject, Teacher
Peter Teaff, Teacher
Gertrude Woods, Chief, Education Division

Charter Oak Unified School District
La Verne College
La Verne College
United States Forest Service
Office of the Los Angeles County Forester
Los Angeles County Department of Parks and Recreation
La Verne College
Azusa Unified School District
Bonita Unified School District
Los Angeles County Arboreta and Botanic Gardens

Project Staff

Elizabeth H. Stebbins, Project Designer
Ralph Taylor, Ed. D., Audio-Visual Coordinator
Jack L. Davidson, Project Coordinator
Marguerite Wiig
Communications Center
Chuck Padilla and Joan Orme
Reproduction Unit

Brea-Orlinda Unified School District
Pomona Unified School District
OFFICE OF THE LOS ANGELES COUNTY SUPERINTENDENT OF SCHOOLS
Organization of Materials and First Draft
Final Typed Copy
Cover and Graphics
Printing

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INTRODUCTION

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Need

The project was funded by the California State Department of Education to the Office of the Los Angeles County Superintendent of Schools. The original application was written with the advice of Mr. Jack Davidson who served as the project coordinator. Mr. Davidson selected a committee of personnel, referred to as the Idea Development Group (IDG), for their specific competencies. The charge was to develop a model inservice plan that could be implemented on an individualized basis for local, county or state teacher training. This model is intended to implement the multidisciplinary approach of Ekistics, A Handbook for Curriculum Development in Conservation and Environmental Education, recently published by the California Department of Education.

The objectives are:

1. To determine the current needs of education instructional staffs to instruct in the discipline of Ekistics
2. To obtain a contemporary resource file concerning the concepts and values of Ekistics
3. To develop a training model, based on objectives one and two, and use resource persons from the disciplines of humanities, social sciences, and science to integrate Ekistics into the existing curriculum

The Idea Development Group

The Conservation Education Teacher Training Project proposal specified that an advisory committee would serve as counsel in making information relevant to teaching personnel. This committee, named the Idea Development Group, was comprised of persons from education and community agencies that have had varying degrees of involvement in presenting information and stimulating interest in children and youth. The three college professors offered expertise in presenting information and motivation to older youth and adults. The governmental agency personnel provided information in many formats for all age groups. This background enabled this committee to have an understanding of the nature of learning and ways to implement a learning structure.

The project designer has a background in instruction, administration, demonstration, and as consultant for the Office of the Los Angeles County Superintendent of Schools in the area of program design and evaluation.

The project coordinator has a background in instruction and administration with specialized interest in outdoor science and conservation education. He has served as consultant for the Office of the Los Angeles County Superintendent of Schools for nineteen years.

The problem focus of the committee was to design a model inservice for teachers that would be applicable to the Southern California school communities. It was indicated that the model should have high motivational impact and yet be adaptable to time allocations varying from a condensed two hours to an expanded ten-month training program.

During the early months the IDG functioned as an intellectual exchange body attempting to establish criteria for the model inservice. Considerable thought was given to the history and background of generic inservice and its primary intent. All businesses, industry and agencies have a form of training for personnel functioning in the operation of the organization. Structure of such training varies from a simple orientation to mass-training programs used in military systems. Technological advances and increased mandating make continuous training of large numbers of personnel necessary for major agencies. A prime concern of the committee was to determine the most efficient way to instruct adult personnel to effectively generate motivation and provide knowledge needed to convey information to youth.

Processes for a planning group were identified and prepared in a management system to result in product production. A time chart was concurrently prepared to show estimated time allocations for each function. Flexibility was provided to allow for unidentified variances not apparent at the time of design. Reports of the IDG action were expected to reflect changes required.

Numerous constraints became apparent in planning a model inservice for a wide variety of uses and resolution of this problem was the first task of the IDG. Assessment instruments were designed to determine needs of teachers in order to develop a data base for designing an inservice model specific to the content area of Ekistics. The three teacher members of the IDG assumed responsibility for administering the instruments to their individual school's staff.

Management Processes

The first functions of the IDG was to determine its own management tasks. The first two meetings were devoted to assessing knowledge of management implications to become involved in management process functions indicated. A management process schematic was designed for use as an operational structure. Major elements of the plan were to:

1. assess the needs of instructional staffs
2. determine information input meeting times
3. determine field testing methods, sites, and content
4. determine evaluation processes
5. establish model inservice requirements

With this operational structure design the IDG began their work of screening and selecting materials and of contributing ideas for the model inservice.

The teacher assessment instrument responses revealed that "ekistics" was an unfamiliar word, that there was interest in instruction specific to conservation in the field and the classroom, and that there was an awareness of outdoor educational sites within the San Gabriel Valley locale. It was apparent that, since ekistics is a term applied to instruction formerly called conservation education, it would require considerable time to determine ways to measure existing knowledge and values and long-range needs. Education personnel tend to think of conservation education as being confined to conservation of natural resources for agricultural and recreational uses; but the currently accepted need to educate citizens, adults and children, to protect the environment from deterioration that could nullify its life support indicated the necessity of adopting the broad umbrella of Ekistics for education that could prepare men to live in and protect their natural environment. Man in his ecosystem appeared to be a relatively new concept.

Repeated emphasis was given to the need to motivate educational personnel toward developing effective Ekistics instruction. Three levels of personnel were identified: those who were concerned and informed, those who were aware but not informed, and those who had no interest in the area of Ekistics. The first level usually were science teachers. The task of the IDG then was to motivate teachers in social sciences and humanities fields to become knowledgeable and skilled in Ekistics instruction.

It was determined that motivation methods for the inservice model would be broken down into two phases, passive and active. Passive motivation would involve receipt of ideas while active motivation would require participation in problem identification activities. The intrinsic values indicated would be generated by the entire inservice experience accelerated by motivational input to combine with extrinsic values to produce societal behavior expected to result in environmental maintenance and improvement.

Concepts of Ekistics and implications for the school curricula were then considered. Dr. Paul Brandwein, author of the framework adopted by the California Department of Education in Ekistics, stated that common attributes of objects, events and behavior were isolated into concepts and the common attributes of objects, events, and behaviors that we prize are values. Concepts result in the synthesizing or association of experiences.

When cognitive dissonance occurs, values are important in resolving the variant understanding; therefore, the weight of the value and the mutuality of group values are factors affecting the solution of controversy. Since values and concepts interface, Ekistical solutions must emanate from a knowledge base (cognitive) and value base (affective) which are merged into concepts. These concepts then are related to the instruction of youth for planned interrelated survival of man in his environment.

The conceptual integration and understanding of Ekistics would have to be structured through activities designed to evolve conceptual thinking. Specific activities are identified to develop concepts yet interface with motivation based on values. Schematic charts for the model inservice follow the sequence of motivation, concepts, and activities. Flexible expansion is inferred to allow for the timing patterns to fit the individual agency needs.

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GOALS AND OBJECTIVES

The Idea Development Group stated the following goals and objectives as the basis for a model inservice designed to prepare instructional staff to interweave Ekistics into the existing curricular structure:

THE GOAL

To develop for youth a life-style that is totally involved in the community of discourse of Ekistics.

THE OBJECTIVES

1. To motivate youth to investigate the content of Ekistics
 - apprehend the importance of the environment
 - realize personal responsibility for management of natural resource use
 - apply criteria of emotional and intellectual environmental needs of men to utilization of resources
2. To develop a knowledge base for Ekistics
 - educational materials
 - local resource persons available for environmental education inservice
 - information concerning study sites suitable for environmental education
 - lists or displays of resource materials for environmental education
3. To present (identify, demonstrate and experience) instructional strategies for Ekistics
 - in the classroom
 - on the school plant location
 - using community areas adjacent to the schoolgrounds
 - using environmental conservation education sites outside the immediate neighborhood

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SOLUTION STRATEGIES

The final product, the model inservice, is meant to provide a knowledge base, to develop concepts, and to provide participant activities for instruction personnel which will enable them to acquire generalized information that can be specified to individualized subject areas of the existing curriculum. The schematics have an interface of process and content because the task of education is an interweaving of these two bodies of knowledge. Basically, the educator is involved with the dual systems of process and content - the educatee is a receiver of content through the process. Multiple modes are needed to accommodate the multiple receiving systems since, in addition to receiving content, the learner is learning how to learn through learning process modes. The activities component of the inservice model therefore is designed to train the educator through participation.

A succinct element of the inservice model is the management planning function. Schematics are provided for the management process functions.

The concepts development schematic from the State of California Department of Education, EKISTICS, a Handbook for Curriculum Development in Conservation and Environmental Education, provides a base for the structural format in which the model inservice is couched. Solution strategies are designed in graphic format to provide an overview in a logical sequence of events - the management process of planning an inservice model, inservice implementation and evaluation, and the management evaluation.

Suggested ways of implementing the three main inservice components are:

Organization of an Ekistics Inservice Planning Committee

In order to insure participation of teachers in all disciplines in the educational unit for which the Ekistics inservice is intended, the planning committee should include people who are involved in teaching humanities, social science, and science as well as at least one person with special interest in conservation, outdoor education or environmental education.

Development of the Inservice Program

Concern for the motivation element was so strong that three members of the Idea Development Group prepared a multimedia package which is offered for use in an ekistics inservice program. An illustrated script for a similar presentation is included in the Motivational Strategies section of the syllabus of this guide. Activities suggested in the Classroom Strategies section are varied in the subject and difficulty to allow demonstration of strategies to be individualized to the audience's needs. The State Department of Education and many county schools offices have a reference file of information, including free and inexpensive materials, available to educational units; lists of books which school libraries may have or wish to purchase or which students may borrow from public libraries; films which may be borrowed from the County Film library or rented from distributors; filmstrips, filmloops, slides, kits, tapes, and study prints that may be purchased.

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MODEL FOR PLANNING EKISTICS INSERVICE EDUCATION

The solution strategies for the inservice model are based on generic inservice culminating in a management planning model, purposefully generic to all inservice and intended to add support to the personnel who would be designing inservice. The steps to be followed start with planning functions of an inservice management committee and progress through the implementation functions.

The basis for emphasizing the management of inservice is to focus on the critical issue of designing a program based on the needs of the audience focus. The system description items are referenced to the content that ought to be in an inservice model. 1.0 and 2.0 are the management components to be used by personnel who are designing the inservice to determine ways to achieve the product outcome. 1.2 is referenced to the inservice model itself. At this point any of the suggested schematics on pages 17 - 22, with specific reference to Ekistics, may be used. The block flow management diagram could be used as a working model with appropriate Ekistics content interfaced with management process functions. The IDG focused its emphasis on content elements of the inservice and provided numerous ideas to support each of the elements in the syllabus section. Los Angeles County Superintendent of Schools office will maintain a master resource file for books, films, and other materials, resource personnel, centers, field trips and course outlines.

The narrative development, Model for Conducting an Ekistics Inservice Program, attempts to translate the schematic to specifics for planning, arranging, and conducting an ekistics teacher training program for an education unit.

MODEL FOR PLANNING INSERVICE EDUCATION

1.0 MANAGEMENT OPERATIONS

1.1 State Management Planning Functions

- 1.1.1 Gain Commitment of Administrative Level of Agencies Involved
- 1.1.2 Identify Planning Task Force Committee Members
- 1.1.3 State Management Goals and Objectives
- 1.1.4 Identify the Target Population Members
- 1.1.5 Identify the Needs of the Target Population
- 1.1.6 Identify the Critical Problems

1.2 Develop Inservice Program Plan

- 1.2.1 Develop the Goals and Objectives
- 1.2.2 Develop Strategies for Achieving Objectives
 - 1.2.2.1 Determine program functions
 - 1.2.2.2 Determine program personnel
 - 1.2.2.3 Determine program materials
- 1.2.3 Establish Time Specifications
- 1.2.4 Identify the Location
- 1.2.5 Determine the Costs
- 1.2.6 Identify Sources of Funds
- 1.2.7 Design Evaluation
 - 1.2.7.1 State the Objectives
 - 1.2.7.2 Determine the performance specifications
 - 1.2.7.3 Specify intermediate performance
 - 1.2.7.4 Specify terminal performance
 - 1.2.7.5 Develop a plan for measuring performance

2.0 MANAGEMENT EVALUATION

- 2.1 State Management Objectives
- 2.2 Determine Management Performance Specifications
- 2.3 Specify Intermediate Management Performance
- 2.4 Specify Terminal Management Performance
- 2.5 Develop a Plan for Measuring Management Performance

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CHART 1
MODEL FOR PLANNING INSERVICE EDUCATION

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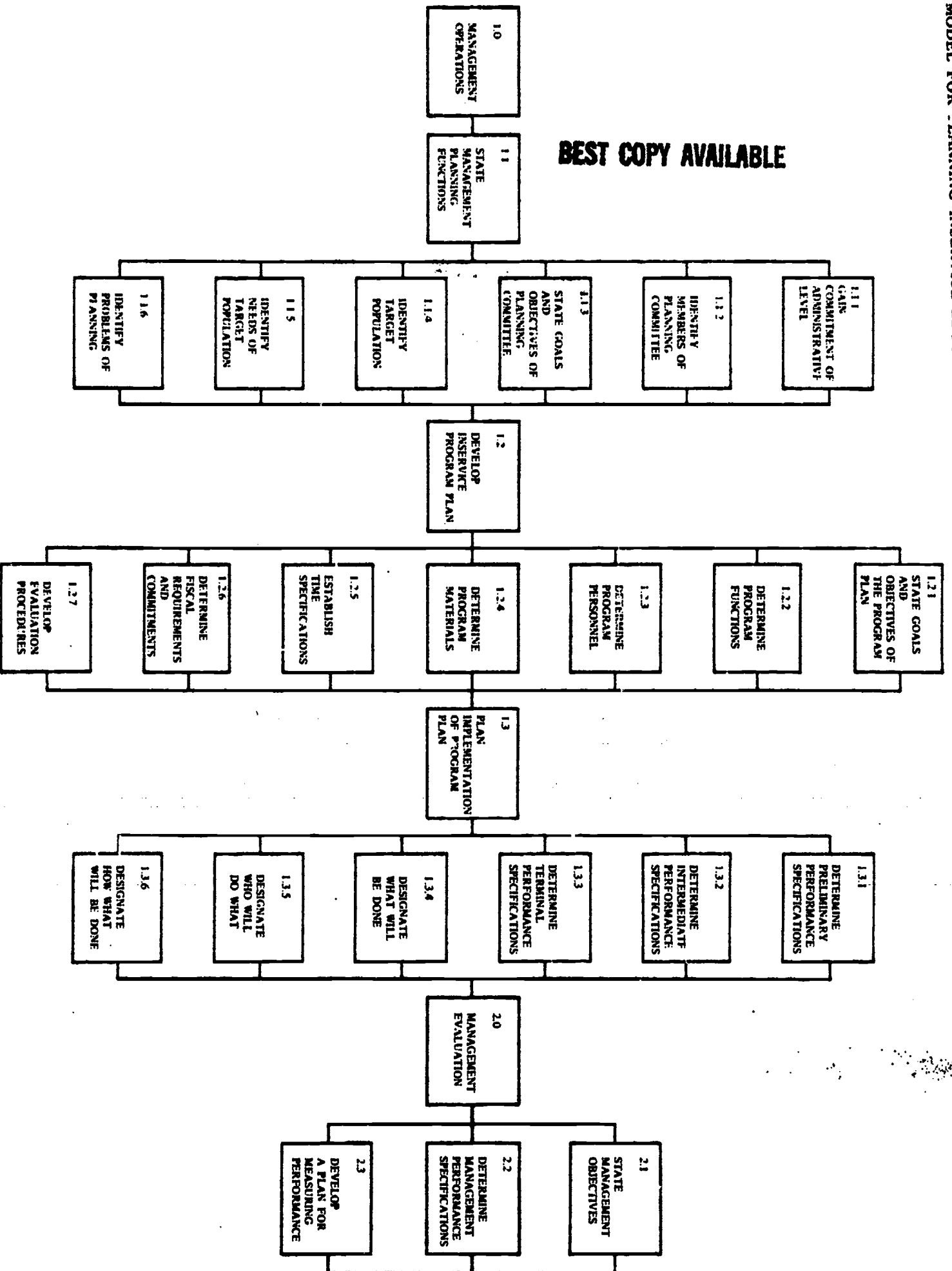
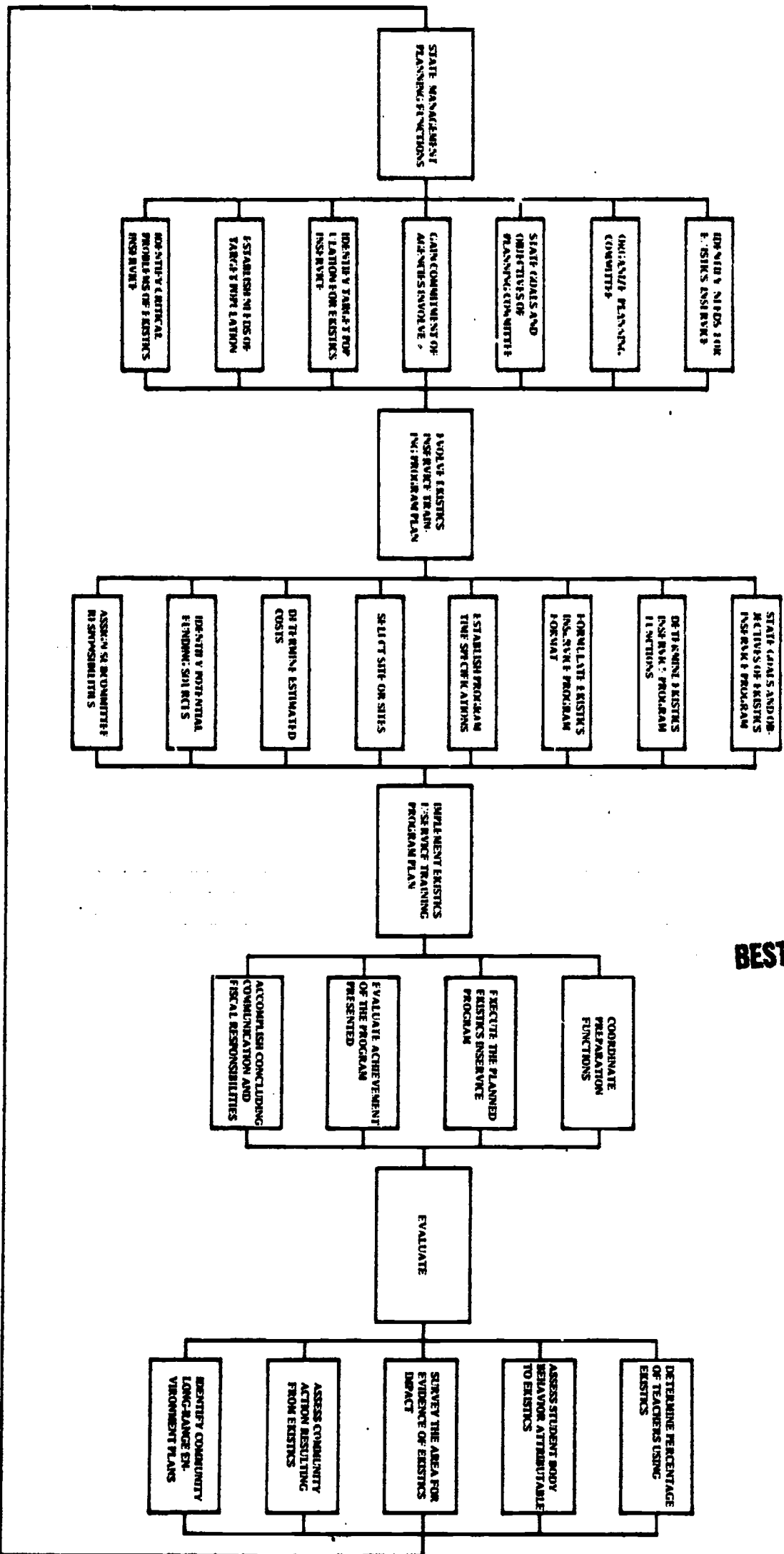


CHART 2

SCHEMATIC OUTLINE FOR ADAPTATION
OF NEEDS OF AN EDUCATION UNIT



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MODEL FOR CONDUCTING AN EKISTICS INSERVICE TRAINING PROGRAM

The following interpretation of the model for planning ekistics inservice education is offered to facilitate the work required to organize and conduct an ekistics inservice program for an education unit. It is hoped that the outline will also help to clarify the relation of ekistics, conservation, environmental education, ecology, and the traditional school curriculum.

STATE MANAGEMENT PLANNING FUNCTIONS

IDENTIFY NEEDS FOR EKISTICS INSERVICE EDUCATION

Any or all of the following might serve to justify planning and presenting an ekistics inservice training program for the education unit:

Teachers and administrators request inservice training in conservation, ecology, or environmental education to satisfy demands of pupils and people in the community.

Concern about the depletion of the earth's natural resources and deterioration of its atmosphere and surface has gained such strength among adults and children that teachers must obtain information, skills, and materials to prepare them to instruct toward protection of the environment from human destruction and pollution.

The California Legislature enacted laws requiring conservation and environmental education in public schools: Education Code 8503 requires that courses of study in elementary and secondary schools shall include instruction in protection of resources, including the necessity of protection of our environment; 8551 requires that the adopted course of study for grades 1 through 6 shall include instruction in man's relation to his human and natural environments; and 8571 requires that the adopted course of study for grades 7 through 12 shall offer courses in man's relations to his human and natural environments.

Studies completed on interests, knowledge, and skills teachers have for conservation and environmental education indicate effective inservice education and resource support are needed to prepare teaching personnel to successfully teach toward solution of environmental problems.

ORGANIZE THE EKISTICS INSERVICE PLANNING COMMITTEE

In order to involve all segments of an education unit's population, the individual or group proposing an ekistics inservice training program should include as many representatives as practical in the planning process.

An ideal committee for planning an ekistics inservice program might include the chief administrator of the education unit, a representative from each grade level and from each subject area of the education unit's curriculum, a representative from each business firm or association involved, a representative from each community service agency or citizens group that may contribute, representatives of parents of students and students themselves. However, such a committee would have between 30 and 50 members and could prove too large to function productively.

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A more efficient committee would consist of 12 to 20 members including the chief administrator and key administrators of the education unit, selected representatives of grades and subjects in the unit, representatives of selected governmental and community service agencies, and representatives of business firms that may provide assistance.

STATE THE GOALS AND OBJECTIVES FOR THE EKISTICS INSERVICE TRAINING PLANNING COMMITTEE

The goal of the ekistics inservice planning committee will be to develop and implement a plan for a program that will offer information, skill development, and resource support for instruction in the education unit's existing curriculum about natural resource conservation and protection of our natural and man-made environments.

Objectives of the ekistics inservice planning committee will be to:

- Design a program format and content formula for the ekistics inservice meeting or meetings
- Establish dates and time specifications for the ekistics inservice program
- Name subcommittees to administer production of the program
- Specify attendance requirements or limitations
- Determine fiscal needs
- Supervise organization, conduct, and evaluation of the ekistics inservice program

GAIN COMMITMENT OF AGENCIES INVOLVED

Before any planning is undertaken official authority should be obtained from chief administrators of each agency that may provide assistance to the ekistics inservice program to involve their personnel or money.

The chief administrator of the education unit for which the ekistics inservice program is being planned -- the county superintendent of schools, the district superintendent, or the school principal -- should be asked to provide official authority to plan and conduct the inservice program.

Chief executives of community and business organizations from which assistance or participation is sought should be contacted early in the planning process to obtain authority for personnel to provide materials or funds or to participate in the program.

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IDENTIFY THE TARGET POPULATION

The population to be served by an ekistics inservice education program should include all the segments of the community's population that are concerned with understanding and solving problems concerning natural resource conservation and protection of the environment through education:

Teachers from all grade levels in the education unit

Teachers from all subject areas

Administrators, curriculum directors, curriculum consultants, subject specialists, school principals

Instructional aides or instructional assistants for all grade levels and all subjects

Parents

Citizens of the community

Students in the education unit

ESTABLISH NEEDS OF THE TARGET POPULATION

Before a relevant ekistics inservice program can be developed, it is necessary to determine what needs of the target population will be fulfilled. Needs may be determined by:

Assessing responses of teachers in the education unit to questionnaires designed to indicate the help teachers seek from inservice training for conservation and environmental education.

Assessing responses of administrators in the education unit to questionnaires designed to show what help they believe teachers need from ekistics inservice training.

Assessing responses of students in the education unit to questionnaires designed to indicate what kind of conservation and environmental protection education inservice training they think their teachers need.

Analyzing recommendations of administrators and conservation and environmental education specialists for ekistics inservice training for teachers in their schools.

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Analyze Needs of the Target Population

Identified needs of the target population should be analyzed carefully to make sure that real needs are not obscured by responses indicating that conservation and environmental education are already being offered in the education unit.

Negative responses or failure to respond could indicate that the population definitely needs motivation toward acquiring information and instructional skills for ekistics.

The target population's need for expanding the breadth and depth of knowledge concerning the environment may be pointed out in questionnaire responses.

Responses that show methods are currently used in teaching conservation and environmental education may indicate need for inservice training in ekistics. Useful suggestions for strategies that might be adapted successfully may also be obtained from teacher responses.

Responses naming resources used by sample populations may indicate a need for help in learning about and securing accurate and useful resource personnel and materials for ekistics education.

IDENTIFY CRITICAL PROBLEMS CONFRONTED IN PLANNING EKISTICS INSERVICE TRAINING

Some of the problems that confront anyone dealing with information about natural resource management and creating or maintaining the human environment are especially critical for conservation and environmental education:

The infinite scope of environmental concerns makes it difficult to design instruction that will produce constructive, positive action in the target population.

Disparate social and economic interests separate motives of various segments of the target population for support or restraint of environmental information and action. To be effective, inservice training must attempt to minimize divergence of motives and create a climate of common environmental concern.

In order to design inservice education that will satisfy needs of the target population for more successful ekistics instruction, teaching strategies that encourage teachers and pupils to search for accurate, pertinent knowledge concerning man's environment are needed.

The overwhelming amount of coverage of environmental problems and concerns by speakers, writers, films, and other public media as well as educational media confuses rather than clarifies. All of these resources must be evaluated for accuracy, impartiality, performance, benefit to the majority, etc. Ekistics inservice training should provide guidance to teachers and pupils in selecting resource personnel and materials for successful conservation and environmental protection.

Categorizing Identified Problems

Analysis of the critical problems confronted in planning ekistics inservice training may result in the following categories:

Motivation -- stimulating teachers' interest in recognizing the need and assuming the responsibility for teaching conservation of resources and protection of the environment.

Concept development strategies -- designing ekistics concepts that can be expected to result in understanding concerning human and natural environments and suggesting behavioral objectives that can be expected to culminate in conservation of resources and protection of the environment.

Classroom strategies -- developing classroom activities that can facilitate development of concept understanding and aid pupils in achieving objectives to result in constructive conservation and environmental protection.

Resources -- providing samples of recommended resource materials and lists of recommended resource centers, personnel, and materials as well as suggestions for procedures in obtaining suitable resources.

EVOLVE EKISTICS INSERVICE TRAINING PROGRAM PLAN

STATE GOALS AND OBJECTIVES OF THE EKISTICS INSERVICE TRAINING PROGRAM

Goals of the ekistics inservice training program probably would be to satisfy identified needs for ekistics inservice education in the education unit and to offer suggestions for solving critical problems of ekistics inservice training.

Objectives that could indicate goal achievement might include:

All segments of the target population are challenged to develop plans for learning about the environment and for initiating a course of action to conserve natural resources and protect the environment.

A base of ekistics concepts and behavioral objectives is developed for implementation in the education unit.

Teachers in the education unit acquire a repertoire of teaching strategies for ekistics education that they can adapt to situations in their classrooms.

A kit of suggested or recommended resource materials for ekistics education is assembled for utilization in the education unit. Lists of available resource personnel and materials to support ekistics education are compiled and distributed to teachers.

DETERMINE EKISTICS INSERVICE TRAINING PROGRAM FUNCTIONS

Functions of the ekistics inservice training program should be developed to achieve the stated objectives:

- Motivate – stimulate interest in conservation of natural resources and protection of the natural and man-made environment, establish relevance
- Inform – define terms, develop concepts of ekistics, establish relationships, identify problems and possible solutions
- Suggest teaching techniques – describe and demonstrate classroom activities, provide opportunity to practice techniques
- Recommend resources – exhibit materials, distribute samples and lists of suggestions

FORMULATE EKISTICS INSERVICE TRAINING PROGRAM FORMAT

Before detailed planning is undertaken, the depth to be pursued in the program should be determined. Shallow treatment might be provided in one session – to stimulate awareness, generate interest, and develop concern regarding conservation and protection of the environment. Take-home materials suggesting sources for information and assistance for developing ekistics education in the education unit may be provided to support the program content. Comprehensive treatment of various aspects of ekistics could be presented in a series of sessions.

Chart 3, Primary Solution Strategies Schematic, suggests a basic pattern for developing an inservice program.

Chart 4, Ekistics Inservice Process Chart, provides a development schematic showing time period allotments for program functions in a suggested ekistics inservice training program plan.

ESTABLISH PROGRAM TIME SPECIFICATIONS

When the program format has been established, the number of sessions to be conducted, the length of the sessions, and the dates can be determined.

Chart 5 shows development of a one-day program plan

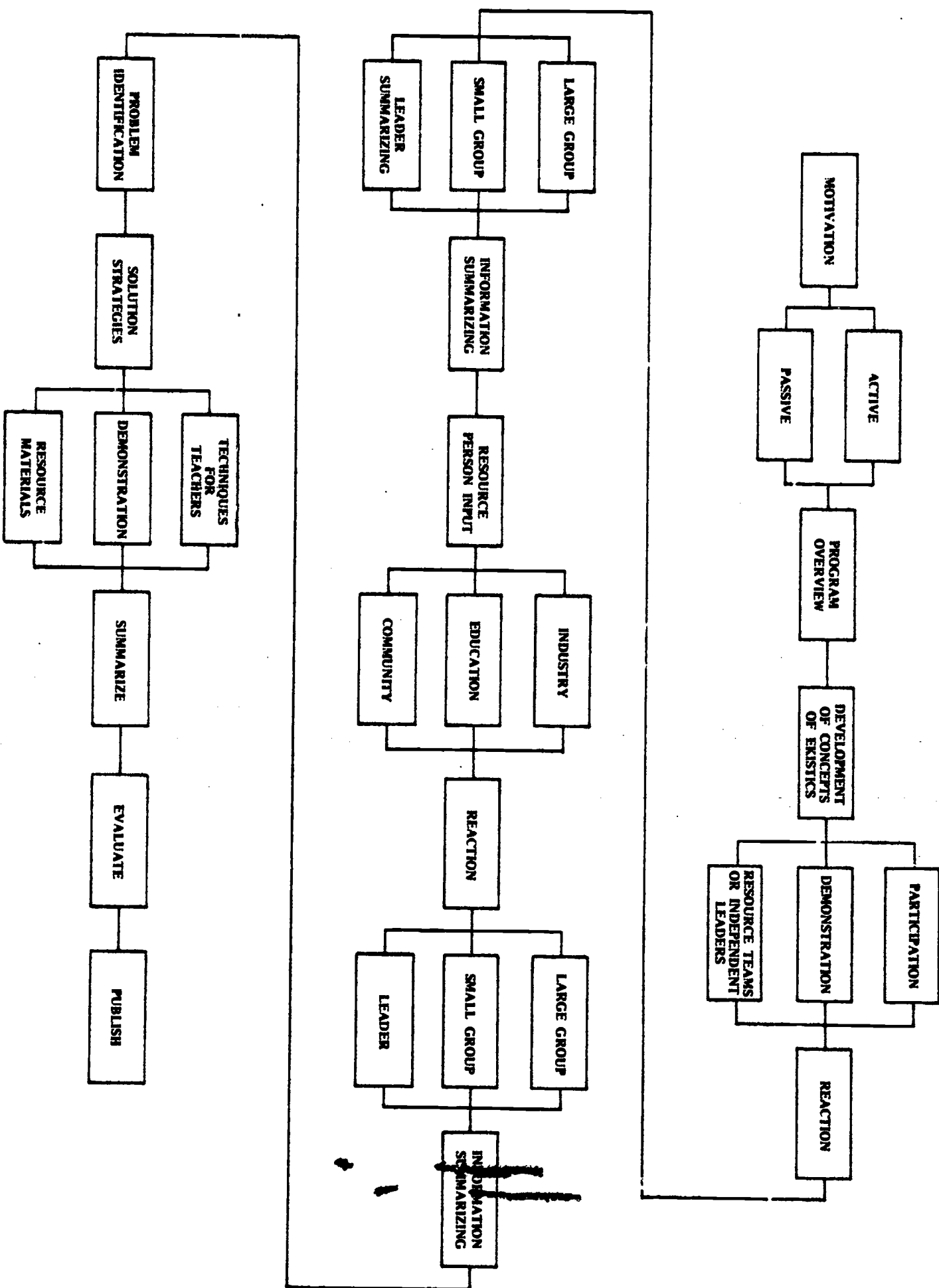
Chart 6 is a schematic showing possibilities for a series of sessions that might be offered after school hours on the schoolgrounds or at facilities adjacent or near to the school

Chart 7 describes a plan for two or three sessions that can be offered as part of a professional conference or over a week end at a camp site.

Chart 8 shows a proposal for a series of meetings offering detailed coverage of one particular aspect of ekistics education in the different subject areas in the different grade levels. The program might have one session each month during the school year or weekly sessions might be offered over a period of one or two months.

CHART 3

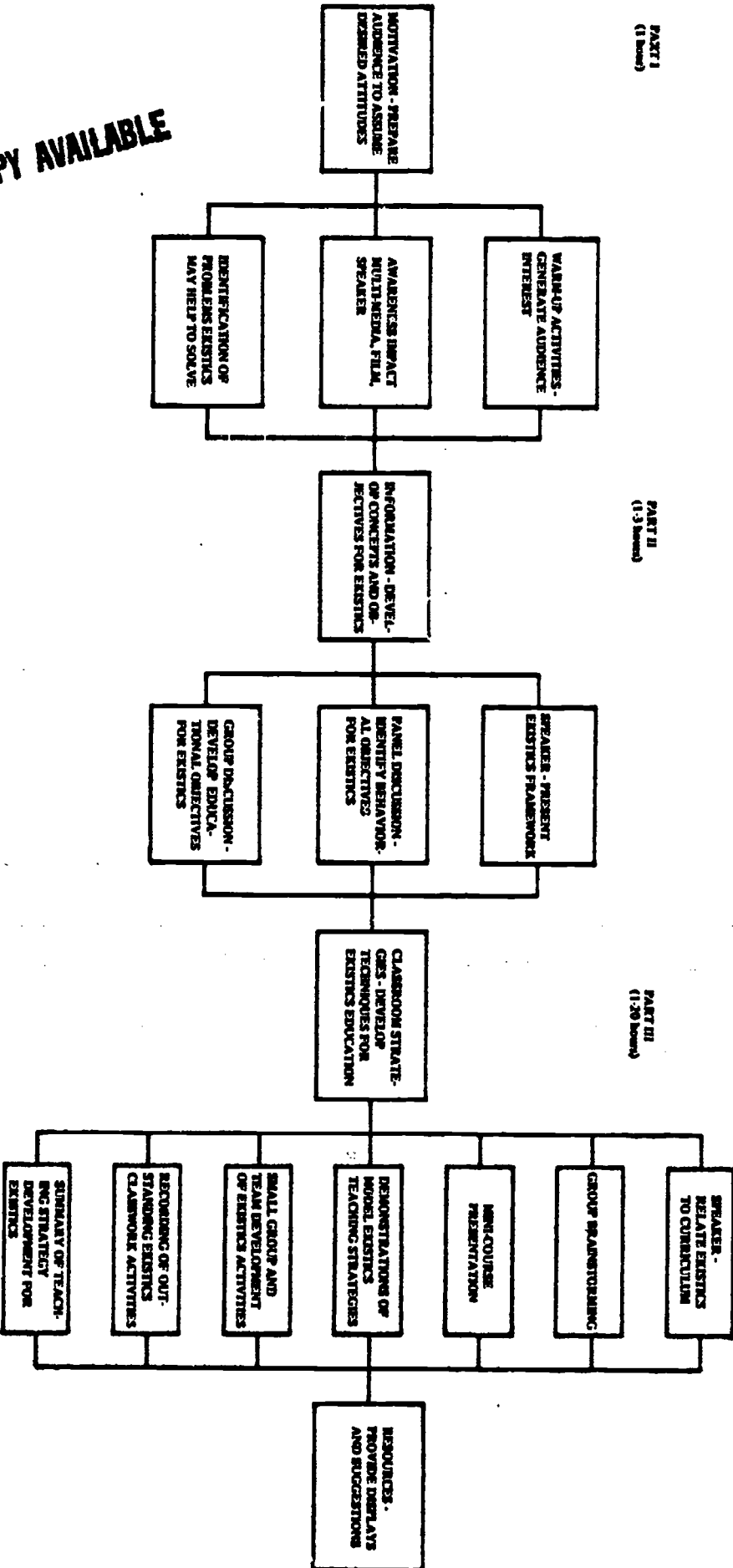
PRIMARY SOLUTIONS STRATEGIES



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CHART 4

EKISTICS INSERVICE PROCESS CHART Developmental Schematic Showing Time Per Allotments



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EKISTICS INSERVICE PROCESS CHART
Series of Meetings Offering Detailed Coverage of One Topic at Each

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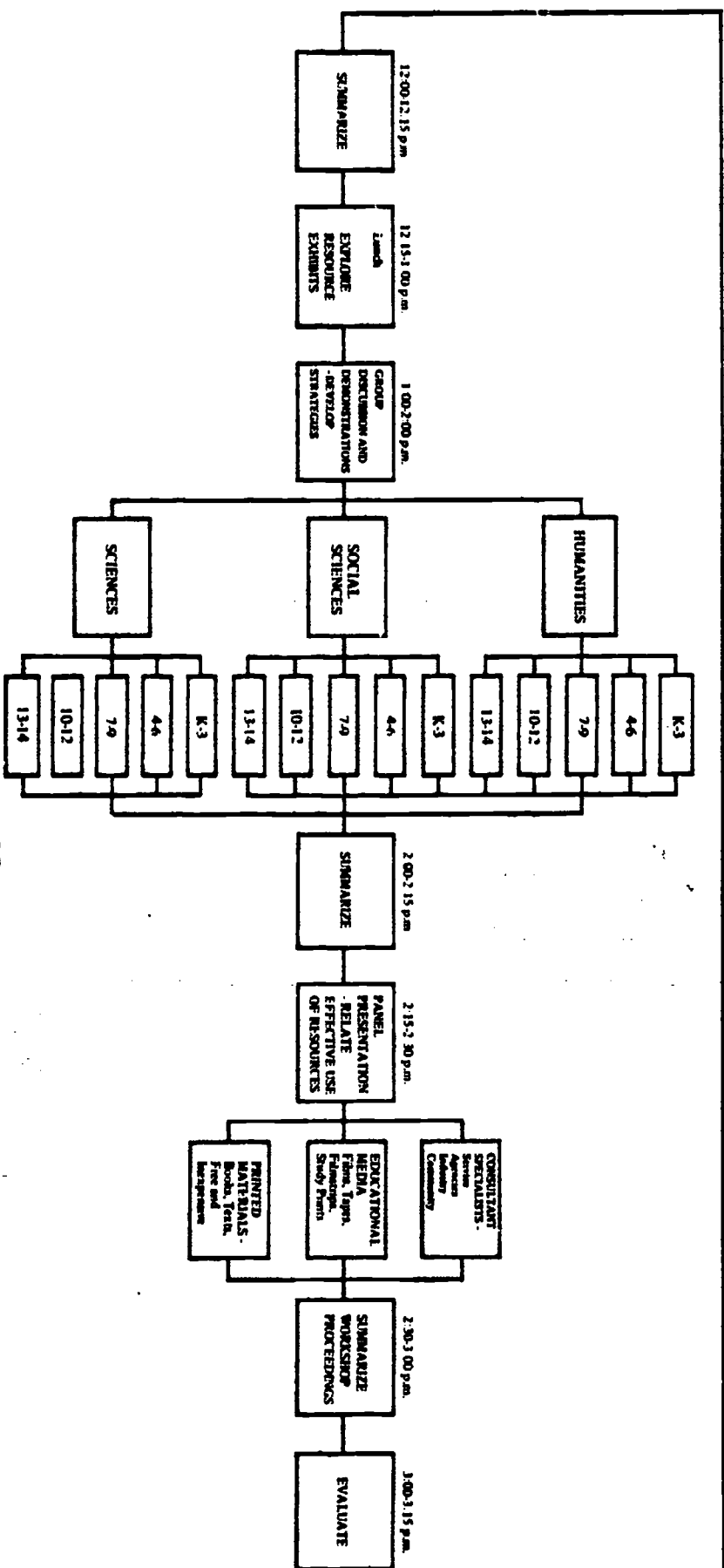
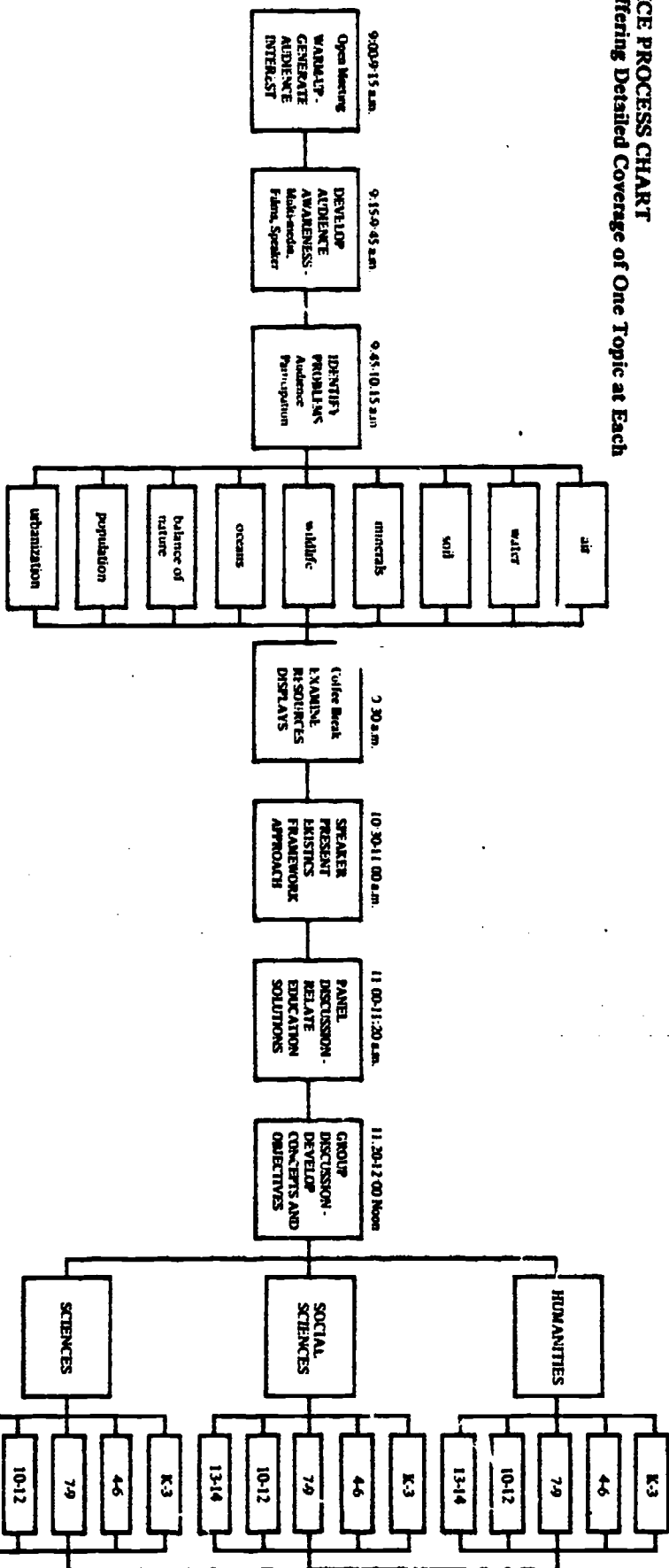


CHART 6
EKISTICS INSERVICE PROCESS SCHEMATIC
 Series of sessions after school hours on the schoolgrounds or at facilities near the school

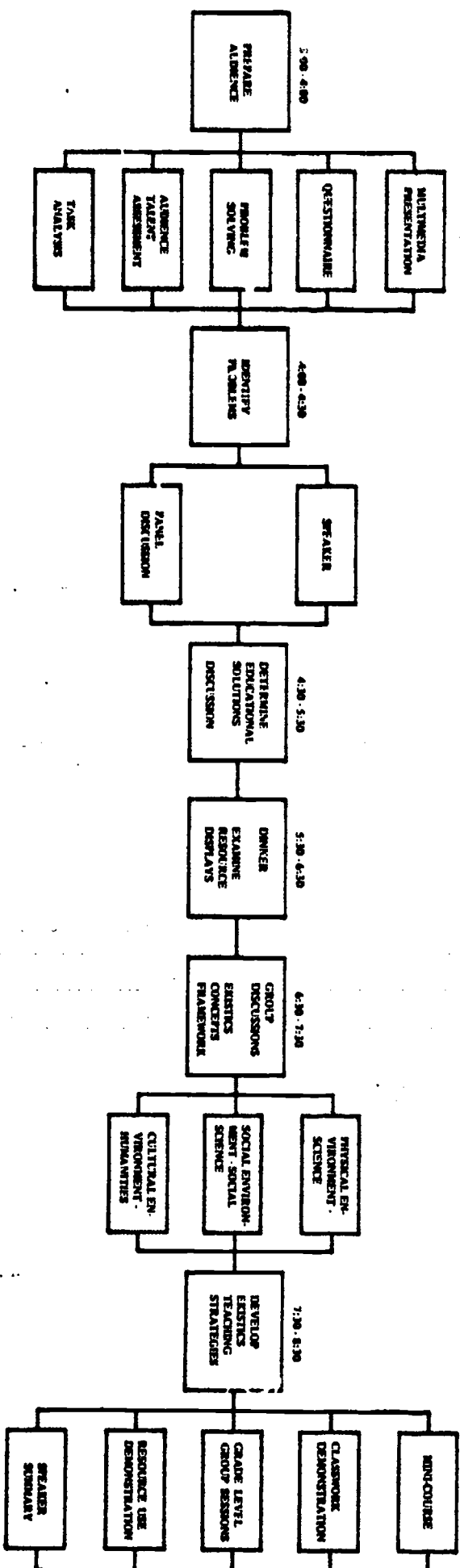
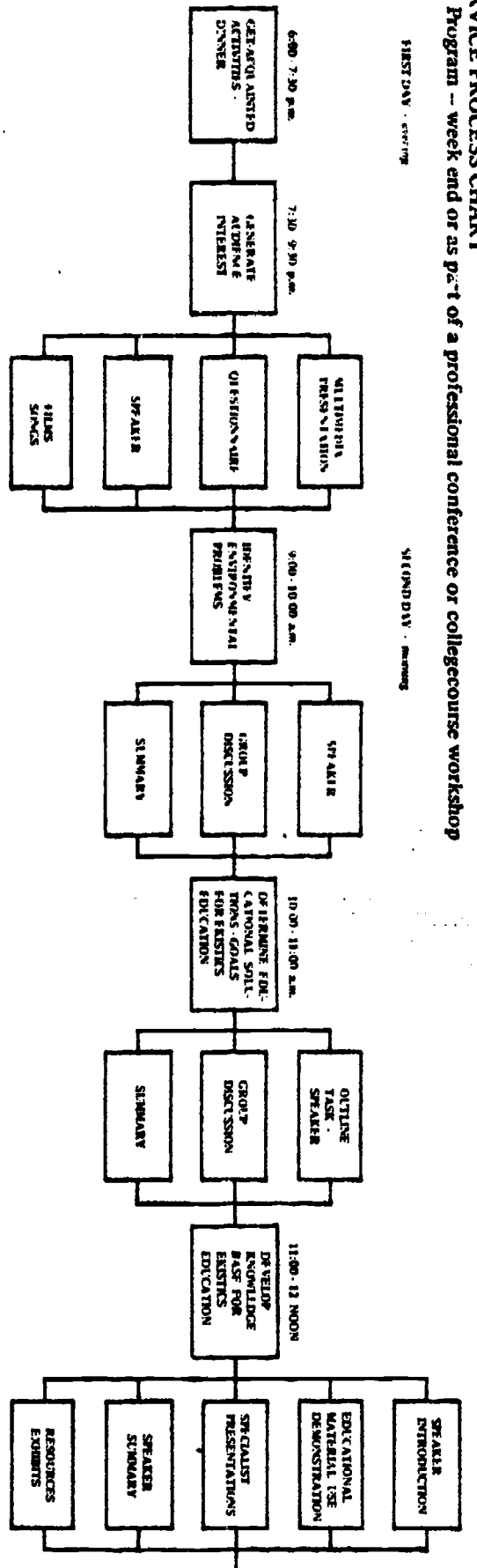


CHART 7

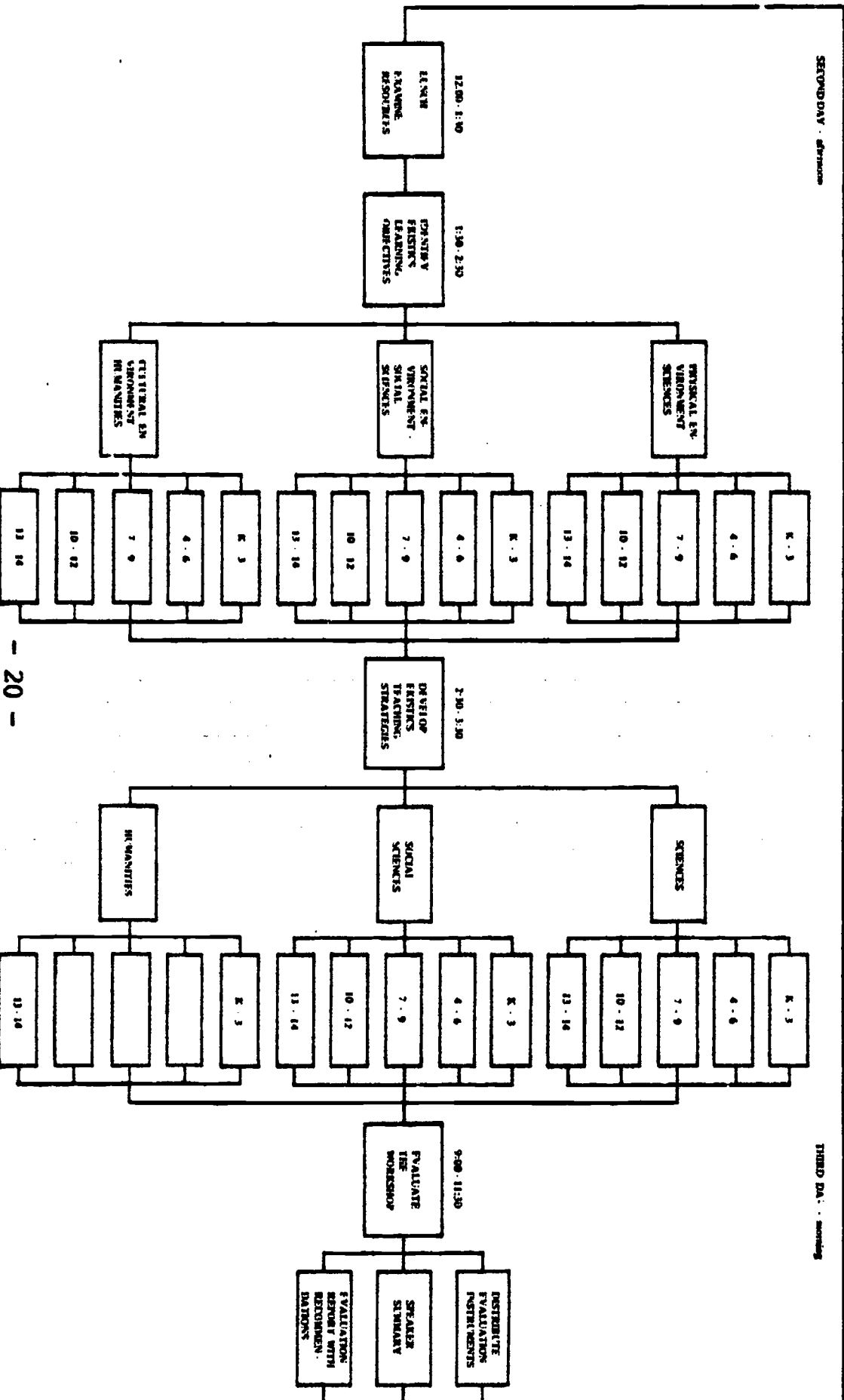
EKISTICS INSERVICE PROCESS CHART Two or three-day Program -- week end or as part of a professional conference or collegecourse workshop

FIRST DAY - evening

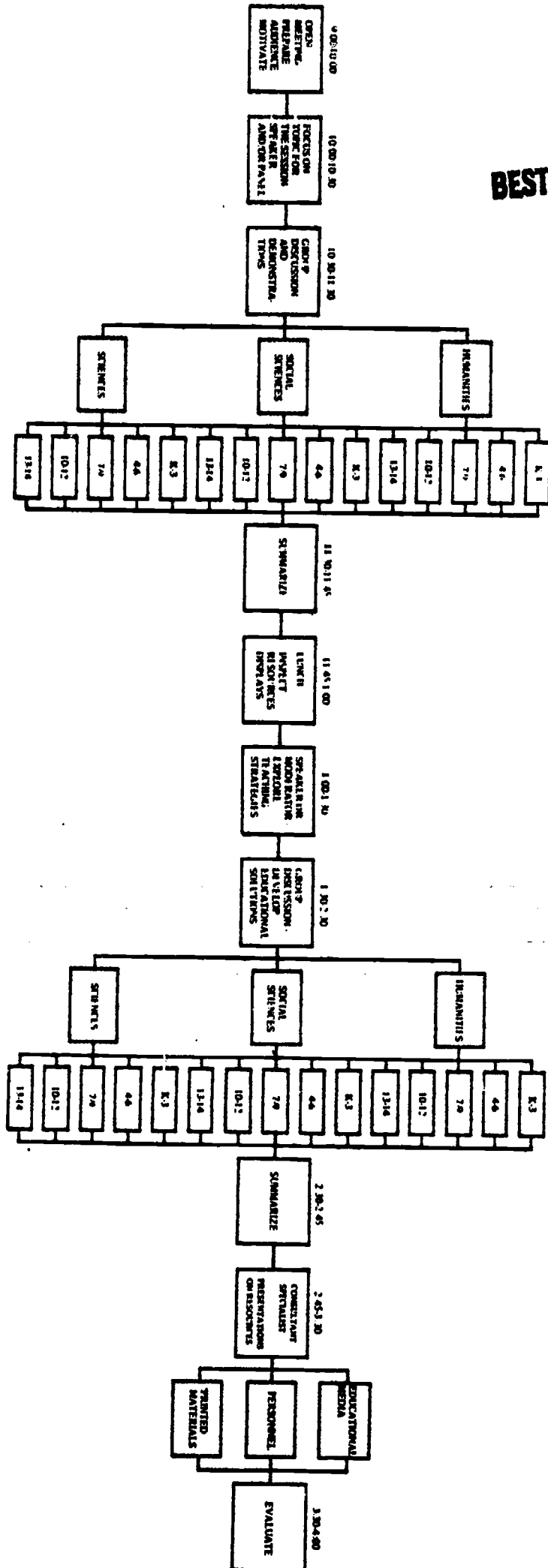
SECOND DAY - morning



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SELECT THE SITE OR SITES FOR EKISTICS INSERVICE TRAINING

Criteria for selecting a location for the ekistics inservice program that will successfully provide facilities and environment desired for sessions planned might include:

Accessibility – careful consideration should be given to the ease with which teachers can reach a location. The local schoolgrounds offering environmental learning opportunities adaptable to classes in the education unit would be first choice for a series of after-school sessions because travel would not be involved and the teachers would have the advantage of receiving the inservice training where they will be using what they learn. A local park or community facility are also accessible.

Environmental suitability – although it is possible to conduct an ekistics inservice program at a mid-city convention center, the sessions are likely to have better results when they are offered where elements of the environment may be observed at least through a window. Southern California has a number of excellent sites that offer auditorium facilities as well as garden or modified natural-environment surroundings.

Facilities – a location for ekistics inservice training should have:

A large meeting room for one-day general session meetings or a smaller assembly area for multi-session programs

Small meeting rooms or areas for small group discussion or participation activities

Display areas for resource exhibits

Audio-visual equipment and viewing facilities

Food service for refreshments, lunch, or other meals in accordance with the program plan

Provision for comfortable attendance of participants – shelter, rest rooms, seating, drinking water

Overnight meetings – although the less comfortable camp facilities located in more primitive environments offer the best opportunities to observe ecological communities and the balance of nature, the sleeping-bag accommodations will not appeal to the teachers who most need the information and help provided in the ekistics inservice training program. There are sites available with hotel-type service that can be combined with outdoor study to achieve desired motivation and training to enable teachers to acquire knowledge and skills for ekistics education.

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SUGGESTIONS FOR EKISTICS INSERVICE TRAINING SITES

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A separate publication would be required to provide detailed, current information concerning facilities or locations that are suitable for ekistics inservice training. The following suggestions provide starting points from which the education unit's search for a location can begin.

The school or school district facilities provide auditorium or cafeteria for large meeting room, conference rooms and classrooms for smaller groups, a classroom or library for resource display, audio-visual equipment and facilities, on-site food service, and the best possible teacher training demonstration areas.

Museums usually have an auditorium or classroom that is suitable for the typical inservice audience, and suitable areas can usually be found to accommodate small group sessions and resource displays. Audio-visual equipment and facilities are frequently available. The adjacency of the Los Angeles County Museum of Art to the La Brea Tar Pits might be considered; and the combination of the Los Angeles County Museum of Natural History and the State Museum of Science and Industry in the setting of Exposition Park offers excellent possibilities.

Nature centers such as the McCurdy Nature Study Center in Eaton Canyon Park, the Placerita Canyon Nature Center in Newhall, the Whittier Narrows Nature Center in El Monte, the El Dorado Nature Center in Long Beach, the Ferndale Nature Center in Griffith Park offer suitable facilities for inservice training as well as exhibits, specialists, study plans, and printed materials.

Arboreta and botanic gardens administered by the Los Angeles County Department of Arboreta and Botanic Gardens provide excellent site facilities and environment for ekistics inservice training programs.

Los Angeles County Department of Parks and Recreation maintains and services nature study centers as well as many other parks that have community buildings with facilities suitable for ekistics inservice programs. Use of such a park in the vicinity of the educational unit can prove to be an excellent site choice.

Los Angeles City Department of Recreation and Parks operates some outstanding facilities that offer environment, buildings, and program needs for ekistics inservice. Agencies of government in Orange, Ventura, Riverside, and San Diego Counties and agencies of cities like Long Beach, Pasadena, Glendale, Burbank, Torrance, Santa Monica, etc. administer some fine sites for effective ekistics inservice programs. The city or county agency handling the maintenance of parks should be contacted for information.

Many excellent sites with valuable environment for learning ekistics information and practicing ekistics teaching are available in the Angeles National Forest, the Cleveland National Forest, and the Los Padres National Forest. Developed facilities or overnight residence are numerous and vary greatly in the kind of comfort provided to visitors and guests.

For assistance in selecting a site for an ekistics inservice program away from the school facilities of the education unit, contact the consultant in outdoor science, conservation, and environmental education at the Office of the Los Angeles County Superintendent of Schools.

DETERMINE ESTIMATED COSTS OF PROPOSED EKISTICS INSERVICE TRAINING PROGRAM

Identify expenses required to conduct the ekistics inservice training program planned:

Rent of facilities – with the availability of centers in Southern California that can be adapted to needs of an ekistics inservice program, it is unlikely that any considerable amount of expense for rent of buildings would be involved. For overnight or weekend programs at a resort in or adjacent to wilderness study areas, the cost could vary from \$1 to \$15 per person per day, depending on the degree of luxury provided.

Rent of equipment – educational units usually have sufficient and adequate audio-visual equipment that can be borrowed for inservice programs for their staffs. However, if more sophisticated equipment is desired or supplementary items are needed, costs should be compiled as accurately as possible for consideration of the committee.

Honorariums for speakers – most well-known, dynamic, authoritative speakers who are able to influence the audience require substantial fee arrangements. If funds are not available to pay honorariums usually asked, it might pay to inquire if the speaker desired would accept an assignment under special arrangements. Occasionally it is possible to obtain the services of a desired speaker at minimal costs if the planning committee can propose a program plan that appeals to the speaker's desire to serve a particular cause and the time fits his schedule. Negotiations with speakers should be undertaken as early as possible in planning in order to secure the service of the best authorities at the most convenient time at the least expense. Chart 9 offers some suggestions for speakers and group leaders for ekistics education.

Wages of clerical personnel or audio-visual projectionists, etc.—clerical and technical service can usually be provided by staff of the education unit; however, it may be necessary to compensate clerks or projectionists for work done outside their regular hours.

Purchase of sample resource materials – it is well to start the collection of resource materials for the ekistics inservice program as early as possible since the expense can be appreciable if much of the material is not secured at minimum cost. See the Resources section in the syllabus for suggestions.

Printing – clerical service, stationary supplies, and printing must be considered in estimating expenses. Negotiations for anticipated volunteer service should be undertaken early in order to establish actual needs for funds.

Postage and communication – costs of mailing and telephone service, as well as travel expense, should be estimated as accurately as possible for the budget.

Food service – meal expense for speakers, program chairmen, clerical aides, etc. should be estimated as expense. The cost of meals for participants usually is paid by the attendees themselves. When dinner is served during an after-school program, cost probably would be paid from district or school funds.

Calculate and total the estimated costs of anticipated expense identified for the ekistics inservice program selected and develop a proposed budget as the amount of money required to conduct the program.

SUGGESTIONS FOR INSERVICE TRAINING PROGRAM SPEAKERS, PANEL MEMBERS, CONSULTANTS, DEMONSTRATORS

<u>Category</u>	<u>Contact for Communication</u>	<u>Fee or Special Conditions</u>	<u>Availability -- Time required for scheduling</u>
Popular, well-known authorities for main or keynote speakers -- motivation.	Publisher of author's book, university affiliation, business address.	Usually a large fee is required.	Require long planning period -- at least 6 months, as much as 2 years.
Specialists for concept development segments -- curriculum development.	Chief administrator of state, county or district department of education.	Fees are usually not required unless travel and housing expense is involved.	Preferably one year should be allowed for scheduling, as little as three months may be needed.
Specialists for teaching strategy demonstration.	County and state departments of education, chief administrators or principal of district or school employing the person.	No fees are required under most circumstances. Expenses may be involved.	At least three months planning time should be allowed, preferably one year.
Educational Media Specialists	County superintendent of schools offices, school district offices, film producers' representatives, Eastman Kodak, etc.	Minimal charges may be involved.	Sufficient time (six months to one year should be allowed for scheduling.)
Governmental Agency Specialists	Forest Service, Soil Conservation Service, Housing and Urban Development, Office of Education, National Parks Service, Air Pollution Control Board, etc.	Travel expenses may be involved.	Plan ahead at least six months, as much as two years for federal agency personnel.
Leaders in business and industry related to the environment	Utility companies, oil companies, petroleum industry associations, automobile clubs, public transportation firms, chemical manufacturers, financial organizations.	Usually free.	The more effective and more popular a speaker is, the more time is needed to schedule him. At least six months should be allowed for arranging services of a busy executive of business or industrial firms.
Public Service Organization Personnel	Sierra Club, Audubon Society, California Conservation Council, American Medical Association, Kiwanis, etc.	Various arrangements from no charge to substantial honorarium.	Reasonable time should be allowed for scheduling of desired personnel. At least six months.

IDENTIFY POTENTIAL FUNDING SOURCES

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If the ekistics inservice training program is to be conducted on the schoolgrounds for teachers of the school and/or other schools in the school district, the expenses probably will be low. The one-school or one-district program can draw on its county office resources, using subject specialists as speakers or panel members and group leaders and utilizing its educational media films and equipment, its reproduction staff, etc. On the other hand, a county superintendent of schools might sponsor a countywide inservice program that would require a large meeting room, recognized speakers, attractive and well-organized resource displays, efficient food service and professional sound and visual technicians which would involve considerable money and work.

When the ekistics inservice program plan is set and the estimated budget computed, the education unit should be asked what share of the costs it can cover. Following are some suggestions for sources from which supplementary (or total) funds or contribution of speaker service or printed materials and films may be obtained if the education unit cannot furnish all funds needed:

Community agencies – ecology groups, environmental groups, conservation organizations, garden clubs, women's clubs, Rotary clubs, Optomists Clubs, Parent-Teachers Associations, church groups

Business and industry – automobile clubs, oil companies, power companies, lumber companies, forest products organizations, newspapers, the bar association, turf clubs, chambers of commerce, manufacturers associations, medical associations. In soliciting funds or resource personnel or materials from these organizations, firm standards of objectivity should be established and maintained. The goal of developing a sanative environment for the community should be accepted and understood mutually by the planning committee and the participating agencies. Any effort to counterattack for purposes of gain should be rejected.

Governmental agencies – Departments of agriculture (federal, state, and county), forestry departments, departments of parks and recreation, planning agencies, environmental control agencies, air pollution control agencies, wilderness protection agencies, wildlife protection agencies, health departments

Colleges and universities – if a college cooperates in issuing course credit for specified attendance and performance, a fee might be charged the individual attending the ekistics inservice training program.

Individuals – the attendees may be asked to pay costs of food service and lodging, especially for overnight or at a professional conference. Attendees may also be charged a registration fee at a professional conference that includes an ekistics inservice workshop.

ASSIGN SUBCOMMITTEE RESPONSIBILITIES

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When the program plan has been finalized and approved -- functions, format, dates and hours, location, estimated costs and funding sources -- it probably will be implemented through delegation of responsibilities to subcommittees. Some functions of the ekistics inservice training program that might be assigned to separate committees are:

Publicity -- To design, produce, and distribute announcements of sessions to be held and to execute the design and production of printed programs.

Registration -- To handle reservations to attend meetings and for food service and housing if involved; to provide assistance to audience in finding locations and receiving necessary program materials.

Facilities -- Reserve auditorium or meeting room, small group meeting areas; provide seating, podium, sound projection equipment, blackboard, adequate ventilation, etc.

Audio-visual equipment and properties -- Secure, reserve, or transport film projectors, slide projectors, filmstrip viewers, screens, video tape recorders, record players, tape recorders, etc., needed to present the various segments of the ekistics inservice training program. Special properties may be required for demonstration of classroom activities. The committee should first determine what items are available for use at the site and then begin negotiations to secure the rest.

Program -- The ekistics inservice planning committee may have engaged keynote speakers or a conference headliner speaker team. If the program subcommittee is expected to recruit and schedule all the speakers, it should begin at once to secure the services of main speakers and then assess the availability of qualified personnel for assignments as members of a panel or as group leaders for a particular interest area. All arrangements with program personnel should be accurately recorded in writing and should have official authorizations. Any necessary paper work should be completed according to policies and procedures of the education unit so that payment for fees will not be delayed.

In addition to speakers and discussion group leaders, the ekistics inservice program probably will include demonstration of teaching strategies for ekistics education. Outstanding teaching teams that have developed successful environmental education teaching strategies should be sought to show their methods or to show a film on teaching ekistics that may be developed and used as part of the program.

Resource exhibits -- This committee has the large job of collecting and selecting the materials desired for the various kinds of resource displays expected to best serve the ekistics inservice audience.

Food service -- Work with the registration committee in arranging meal service or box lunches. This committee should also arrange refreshments for coffee breaks and any social occasions where food might be served.

Evaluation -- Design, have reproduced, and distribute an evaluation form to determine the success the ekistics inservice training program achieved.

IMPLEMENT THE EKISTICS INSERVICE TRAINING PROGRAM PLAN

COORDINATE PREPARATION FUNCTIONS AND EXECUTE THE PLANNED EKISTICS INSERVICE TRAINING PROGRAM

To accomplish the smooth execution of the ekistics inservice program plan, careful coordination of preliminary preparations and actual presentation responsibilities with clear and specific communication is necessary. Suggested specifications for performance of the designated subcommittees might include:

Communications -- Under the direct supervision of the planning committee, design and distribute announcements to inform the target population of sessions to be held and printed programs to provide participants with information needed to enable them to select and attend sessions they desire.

Registration and hospitality -- If appropriate for the program and audience expected, develop a registration form to provide attendance data desired; distribute, collect and use information in determining audience need. Set up a registration table prior to the meeting and greet attendees, distribute tickets, programs, instructions, or materials as planned. Collect fees due. Provide assistance to attendees in locating meeting rooms, etc.

Facilities -- Secure final commitments for use of buildings, rooms, grounds or other areas required for the ekistics inservice program. Inspect prior to the program to make sure all needs are provided. Assign personnel to be available to provide service needed during the program. Arrange for required clean-up following departure of the audience. If fees are involved, complete and submit any documents required according to established policies and procedures of the education unit.

Program --

Audio-visual equipment and properties -- Set up and test equipment and inspect film, tapes, records prior to program. Arrange for easy set-up of any properties required for demonstrations or speaker presentations. Provide technicians needed. Arrange for return of equipment and properties.

Speakers -- Arrange for transportation and housing of speakers as required, obtain biographical data and introduce speakers to audience, provide any courteous host services indicated during the program. Make sure all arrangements for fee payment agreed upon are carried out promptly according to policies and procedures of the education unit and/or the planning committee.

Group Sessions and Group Leaders -- Set up conference table if a panel discussion is planned; introduce panel moderator and panel members. Instruct small groups regarding room assignments and designated tasks. Introduce leaders to groups. Coordinate summarization of group accomplishments. Follow established policies and procedures to compensate participants according to approved arrangements.

Teaching strategies demonstration sessions -- Provide arrangements for setting up needed properties, introduce demonstrators, instruct groups regarding procedures to be followed in group skill development sessions, coordinate summarization of group accomplishments.

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Resource exhibits -- Have displays of resource materials set up and ready for the first arrivals to examine. Assign personnel to assist attendees in obtaining information desired. Lay out materials available for distribution to attendees and, if desired, assign people to oversee the distribution. It may be necessary to take names and addresses of attendees to whom additional materials may be sent.

Food service -- Arrange with restaurant, caterer, or kitchen staff to provide meals or refreshments planned. Follow the planned procedure in collecting and paying charges for food service.

EVALUATE ACHIEVEMENT OF THE EKISTICS INSERVICE TRAINING PROGRAM PRESENTED

Distribute evaluation forms, collect completed questionnaires, record data, and report findings to the person designated by the planning committee.

ACCOMPLISH CONCLUDING COMMUNICATIONS AND FISCAL RESPONSIBILITIES

Following conclusion of the ekistics inservice program, careful attention should be given to getting all necessary signatures of all program participants. Established policies and procedures should be followed in providing evidence of service so that payment to speakers, suppliers of materials and equipment, food service, etc. will not be delayed. Communications expressing appreciation for program participation (especially anyone who provided volunteer service) should be accomplished as soon as possible following the program.

EVALUATE RESULTS OF THE EKISTICS INSERVICE PROGRAM

DETERMINE PERCENTAGE OF TEACHERS WHO USE EKISTICS CONCEPTUAL FRAMEWORK IN CLASSROOM ACTIVITIES

After a reasonable period of time has elapsed to allow teachers in the education unit to plan strategies for teaching based on the ekistics conceptual framework, a questionnaire that would produce responses to provide evidence regarding application of training received in the ekistics inservice program should be completed.

ASSESS STUDENT ACTION FOR ENVIRONMENTAL IMPROVEMENT IN THE EDUCATION UNIT COMMUNITY THAT CAN BE ATTRIBUTED TO EKISTICS LEARNING

Following the presentation of an ekistics inservice training program in an education unit and after teachers have had time to implement teaching strategies developed for ekistics education, an assessment of the activities undertaken for the purpose of protecting or improving the environment in the school or schools should be made with particular emphasis on those activities that have resulted from ekistics teaching.

INSPECT THE COMMUNITY TO DETERMINE EVIDENCE OF ACTION ATTRIBUTABLE TO EKISTICS TEACHING IN THE
EDUCATION UNIT

When sufficient time has passed to allow teachers to implement ekistics teaching and pupils to translate ekistics learning into environmental improvement action, the community should be surveyed to determine visible benefits that could be attributed to ekistics education.

SURVEY THE EDUCATION UNIT TO ASCERTAIN WHAT LONG RANGE PLANS HAVE EVOLVED AS A RESULT OF THE
EKISTICS INSERVICE TRAINING PROGRAM

An assessment of long range plans of the student body, the professional staff, and the citizens of the community for projects or action designed to improve the environment which can be regarded as resulting from the ekistics inservice training program should be completed.

From this evaluation the education unit would have documented direction regarding achievements of the ekistics inservice provided and needs for additional or different inservice training in the future.

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SYLLABUS

FOR AN EKISTICS INSERVICE TRAINING PROGRAM

309

MOTIVATIONAL STRATEGIES

Our Idea Development Group was unanimous in expressing belief that, before we undertake any effort to provide suggestions for ekistics teacher inservice training, we must determine the need to teach ekistics. It was felt that we need to establish motives for learning how to teach conservation and environmental protection in classrooms of public schools before we suggest instructional methods.

Introductory activities to involve the participants in solving problems of environmental pollution and deterioration, such as questionnaires, simulation games or puzzles are good interest primers. A few ideas for warm-up activities are suggested in this section.

Films offer popular and effective stimulation of interest and can prepare the audience for the work ahead. A few films that are available in the film library of the Office of the Los Angeles County Superintendent of Schools are listed. The films named may also be available in school or district educational media centers.

The multi-media presentation script is offered as a pattern for development of a presentation by personnel of the education unit, using materials particularly appropriate for the location and the audience.

The Idea Development Group recommended films for motivation for ekistics education:

All the Difference

Ark

End of One

Men at Bay

What On Earth

Which is My World?

Information concerning the films is provided in the annotated listings in the resources section of this guide. A planning committee or program chairman or subcommittee chairman will probably have access to other films that can prove effective in motivating teachers to learn how to teach ekistics education. New films are released continuously and the content seems to be increasingly relevant to education needs.

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AUDIENCE QUESTIONNAIRE

1. Further industrial development should be prohibited on any wild, natural, native, pristine, scenic, or pastoral portion of coasts or shores of the United States, including their bays and estuaries and inland waters.
True _____ False _____
2. Nature always balances itself to allow every species to survive.
True _____ False _____
3. Strong environmental controls should be legislated and enforced nationally.
True _____ False _____
4. Men and women who grow up in the country are the most successful environmental protectors.
True _____ False _____
5. To acquire the knowledge needed to motivate future citizens to conserve natural resources, every student should be required to take courses in ecology as part of the science curriculum.
True _____ False _____
6. The solution to problems of poverty is to provide technological training to rising poor countries or to people in ghetto communities to enable them to raise their economic standard of living.
True _____ False _____
7. Men are happiest when competing and conquering.
True _____ False _____
8. Living things cannot survive long periods of ideal laboratory conditions.
True _____ False _____
9. Modern education should provide knowledge and training to enable citizens to live in one of two styles: (1) in a controlled environmental capsule society or (2) nomadically in and from primitive lands.
True _____ False _____
10. Conservation, ecology, and environmental problems are very specialized subjects that cannot be taught in traditional classroom work.
True _____ False _____

SOLVING A PROBLEM THROUGH GROUP INTERACTION

Have the audience count off in groups of six. Pass out copies of the "6 bits of information", one bit to each member of the group. Tell the audience that there is a problem to solve -- they can tell their group what is on their paper but they must not show it to the others. The task is to identify and solve the problem. Allow approximately 15 minutes.

The people who developed the problem-solving exercise feel that it contains elements of involvement that most groups go through; it also illustrates the way groups work together on common problems.

They hypothesized that the following things would take place during the problem-solving exercise: Write each item on the board, or have a chart made up with each item listed.

- a. TRUST (will develop) -- must trust that the instructor gave you a solvable problem -- must trust each other.
- b. RITUALISTIC LISTENING (will take place) -- this is a kind of polite listening, really without caring too much, because the data offered has no relevance at that time.
- c. REAL LISTENING (will take place) -- when statements become more meaningful. When people interrupt and say, "Say that again!", the data begins to mean something.

When real listening occurs, participants will begin to vision the listening and really look at other people; they will construct a visual display by writing down the data in a common place; they will move closer together, sometimes change places or move around.

This type of activity at the beginning of a session demonstrates:

- a. The problem could not be solved without the contributions of each person in the group.
- b. People feel more committed to a session if they contribute by saying something -- the earlier the better.
- c. It's easier to talk to each other in a small group than to talk to one instructor in front of a large group.
- d. This exercise illustrates that each person in a group brings information and skills that can be used by the entire group to solve common problems. THE PIECES OF PAPER REPRESENTED THE INFORMATION AND SKILLS THAT EACH PERSON BROUGHT TO THE GROUP.

In each ekistics inservice training session we will be concerned with providing ways for each person to contribute knowledge, information and skills to the solving of common problems related to teaching conservation and protection of the environment. The content and activity itself are not most important -- what is important is that we can use different techniques to achieve an objective or solve a problem, and getting people together in talking to each other and contributing as a group is most important. NONN: OF US IS AS SMART AS ALL OF US.

SIX BITS OF INFORMATION PROBLEM

Solving a Problem through Group Interaction
by Dr. Michael Ciammateo

B₂ 1

Although you may tell your group what is on this slip, you may not pass it around for others to read.

Information:

The Dinosaurs had Tom for a teacher during the third period.

Dick and Belinda did not get along well so they did not work together.

During the first period the Team Leader taught the group that Harry liked best.

B₂ 3

Although you may tell your group what is on this slip, you may not pass it around for others to read.

Information:

The Freznel Elementary School Intermediate Unit had two teacher's aides, four teachers, and four instructional groups of students.

Each instructional group had chosen its own name.

Sybil was the Team Leader for the Intermediate Unit.

B₂ 5

Although you may tell your group what is on this slip, you may not pass it around for others to read.

Information:

Belinda and Ralph disagreed about how it would be best to handle the Bombers who always had trouble settling down to work.

Dick preferred to work with the Champs over all other groups.

Although the team leader had been at Freznel School for five years, this was a shorter period of time than for the other team members.

B₂ 2

Although you may tell your group what is on this slip, you may not pass it around for others to read.

Information:

All teachers taught at the same time and exchanged groups at the end of each period.

Each teacher liked a different group best. During the second period each teacher taught the group he liked best.

Each teacher taught every group during one of the first four periods of the day.

B₂ 4

Although you may tell your group what is on this slip, you may not pass it around for others to read.

Information:

Your group members have all the information needed to find the answer to the following question. Only one answer is correct. You can prove it.

IN WHAT SEQUENCE DID THE APES HAVE THE VARIOUS TEACHERS DURING THE FIRST FOUR PERIODS?

Some of the information your group has is irrelevant and will not help solve the problem.

B₂ 6

Although you may tell your group what is on this slip, you may not pass it around for others to read.

Information:

The team leader taught the Dinosaurs the second period.

Harry worked with the Bombers in the third period.

Sybil had been at Freznel School a shorter period than any of the other teachers in the Intermediate Unit.

IDENTIFY THE HUMAN RESOURCES IN THE GROUP

As a means of identifying the skills and resources of individuals in the group, ask them what kinds of questions they would want to ask to get to know each other better and list the questions where everyone can see them. Sample questions might include:

If you had one more thing in your life to do, what would it be?

What hobbies or interests do you have?

What is the most exciting thing you have done in the past six months?

What are some skills you could share with other participants?

After ten minutes, begin rearranging the questions in order and number each one selected as pertinent to work of the session.

Give each participant a large piece of paper and a marking pen and allow him ten to fifteen minutes to answer each of the questions.

With masking tape, hang each sheet on a wall or board where they can be seen by people in the group. It is suggested that the participant remain by his or her sheet so others can ask questions and discuss the answers. Also, if possible, the sheets should remain hanging for reference as the session progresses.

Program chairman should survey the sheets for possible advantageous utilization of particular skills and experience in various segments of the program.

ESTABLISH GOALS AND OBJECTIVES FOR THE SESSION

1. Ask each audience participant to state in as brief form as possible in writing what he or she would like to get out of this session. Allow five minutes.
2. Ask each participant to join one other person and share expectations. Allow five minutes.
3. Each pair will find another pair with whom to share expectations. Allow five minutes.
4. The quartet will find another foursome and the groups of eight will develop a list of goals and objectives they agree on for the session. The discussion should bring out the intent of the ekistics inservice planning committee to help teachers use their present techniques and learn new ones to teach conservation and protection of the environment in classrooms, on the schoolgrounds, wherever the student finds learning conditions.
5. Keep in mind that this exercise is intended to get people to look at their own needs in relation to the potential of the ekistics inservice session. After ten minutes, or when discussion seems to have been somewhat exhausted, hand a list of the goals and objectives developed by the planning committee of this session and ask each group to compare the lists.
6. Take a few minutes to relate goals and objectives of the ekistics inservice session.

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MULTIMEDIA PRESENTATION

The accompanying script for a three-screen, sound-slide presentation* is included in order to give local planning committees a guide for producing a pictorial overview of the model inservice program developed in this guide. It can and should be modified to fit local situations and concepts.

Use

The presentation should be produced with the idea that it would be used 1) to help sharpen and focus the ideas of a small planning group and 2) for an enlarged local committee who would be responsible for planning and conducting the Ekistics inservice activities of a school or district.

Production

With the aid of the script, presentation should not be difficult. However, for local committees with a minimum of experience, the following references are included as a guide to simple production techniques. It is assumed that a slide copier such as the Honeywell Repronar will be available.

Kemp, Jerrold E.
Instructional Design
Fearon Publications, Belmont, Ca.

Kemp, Jerrold E.
Planning and Producing Audio Visual Materials
Chandler Publishing Co., San Francisco, CA

Nine Steps to Fame and Glory
Visual Products Division, Minnesota Mining
and Manufacturing Company, Minneapolis, MN

Photographic Production of Slides and Filmstrips
Publication No. S-8
Eastman Kodak Company, Rochester, NY

Planning and Producing Visual Aids
Publication No. S-13
Eastman Kodak Company, Rochester, NY

Slides With A Purpose for Business and
Education, Publication No. VI-15
Eastman Kodak Company, Rochester, NY

Wide-Screen, Multiple-Screen Showmanship,
Publication No. S-28
Eastman Kodak Company, Rochester, NY

They See What you Mean
Ozolid Division, General Aniline and Film
Corporation, Johnson City, NY

*Developed by
Dr. Ralph C. Taylor, Coordinator, Educational Material Services, Pomona Unified School District


EXISTICS

Music--"Where Have All the
Flowers Gone?"


Music up--Hold for 10 seconds--
Screens blank

1.		
----	--	--

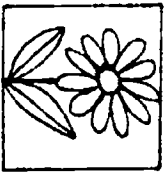
Music holds 3 seconds

2.	(Small flower) 	
----	---	--

Music holds 4 seconds

3.	Hold above	(Same flower--longer) 
----	------------	--

Music holds 5 seconds

4.	Hold above	Hold above	(Same flower) 
----	------------	------------	--

EKISTICS

Music holds 5 seconds, fades,
voice over:

"Is ekistics"

Music cuts--silence 2 seconds

5.

(Same flower--
full frame)

Classic music-- background

"This?"

(Mountain scenic)

6.

Music background

"This?"

Hold above

7.

(Downtown during rush
hour)

Music background

"Or this?"

Music up, hold, and fade.

"Ekistics is all this and
more."

Hold above

8.

Hold above

(Junk yard--perhaps
old cars)

EXISTICS

Music background

"People, places, things. . ."

(City park)

9.

(Southern style
plantation House)

(Non-objective
sculpture)

Music background
"People, places, things. . ."

(Ghetto crowd)

10.

(Rundown slum area)

(Beer cans and litter)

Music up, hold, fade.

"Existics is you!"

Use rub on letters or other overlay technique

(Mountain scenic)

E K I S T I C S

11.

(Golf course)

I S

(Mob scene)

Y O U : : : :

Background music

"It's how you live. . . ."

(Family working in
yard in suburbia)

12.

(Family on steps of
tenement house)

(Farm family doing
chores)

EKISTICS

Background music

"It's how you work"

(Corporate office)

13.

(Assembly line)

(Construction workers)

Background music

"It's how you 'recreate'
yourself"

(Golfers)

14.

(Mt. campers)

(Inside cocktail lounge)

Rub on letters or other overlay technique

Background music up and hold
5 seconds

15.

(Fisherman on beach)

EKISTICS IS
YOU and YOUR
ENVIRONMENT.

Background music hold 5 seconds

(Low cost government
Housing project)

EKISTICS IS
YOU AND YOUR
NEIGHBOR

16.

Hold above

EXISTICS

Background music--hold 5 seconds

Hold above

17.

Hold above

(Interior of a modern
department store)
EXISTICS IS
YOU and YOUR
CULTURE.

Background music--fade

"Existics is you in a
world-wide environment;"

(Arctic scene--no
people)

18.

(Tropic jungle--no
people)

(Temperate zone forest--
no people)

Background music fade--fade in
street noises--hold 5
seconds--fade.

"and a national environment. . ."

(Maine fishing village)

19.

(Mid-country farm
lands)

(Western Indian i.e.
Navajo or Hopi)

Music--"California, Here I Come"
fade in and up--hold for
first two phrases of chorus--
fade down.

"Existics is you in your
state."

(Busy beach scene)

20

(Yosemite crowd)

(Cycles on the desert)

EXISTICS

Music background
....."and close to home"

(Freeways)

Local scenes may be substituted, but imply transiency and movement.

21.

(Airport)

(Bus Terminal)

Music background
"Existics is you and your
neighbor."

Repeat slide #16

22.

Music background

....."Around the world."

(Eskimos & Igloo)

hold above

(Religious celebration
in India)

23

Music background

....."Across the nation."

(Harlem street scene)

hold above

(Navajo hogan)

24.

BEST COPY AVAILABLE

Music background

In the State

(San Francisco Cable Car)

25.

hold above

(Sacramento with Capital Building)

Music background

. . . . "and close to home."

Music up and fade.

(Disneyland)

26.

hold above

(Skid Row, L.A.)

Hard rock music. Loud introduction, hold briefly and fade to background.

"How do you live? What do you value? Where is your commitment?"

Same as #17

27.

(Integrated elementary school with children in the foreground)

(Night scene - downtown Las Vegas)

Black letters on yellow background.

Rock music background, up & hold 8 seconds - fade to background

EXISTICS

THE

28.

IS

ACTION

WHERE

IS!

EXISTICS

... "So how can you get a
piece of the action?"

Hold above
29.

Hold above

Hold above

Music up and hold

Use overlay technique

(Junk yard)
YOU CAN
SEE!
30.

(Strip mining)
YOU CAN
READ!

(Eroded hill)
YOU CAN
DISCUSS!

Music hold.

Red block letters on blue background.

YOU
31.

CAN

TEACH

Music hold 2 seconds.

YOUR-
SELF

Music hold 2 seconds.

Hold above
33.

**YOUR
PEERS**

Music hold 2 seconds, fade to background.

"You and your peers must learn before you teach your students."

Hold above
34.

Hold above

**YOUR
STUDENTS**

Rock music fade out.
Classic music fade into background

"The problem is complex."

Black letters on light blue background
**IS
HUMANISTIC?**
35.

**THE
SCIENTIFIC?**

**CONTENT
AESTHETIC?**

Background music.

"A management concept will help you attack that problem."

Light blue background, yellow blocks. Black letters

MOTIVATION →
36.

**PROGRAM
OVERVIEW** →

**CONCEPT
DEVELOPMENT**

EXISTICS

Music background

"What turns you on, or off?"

(Mc. scene)

37.

(Auto wrecking yard)

(L.A. music center)

Music background

"What about your peers?
Your students?"

Fade music low.

MAKE

WRITE

SORT

38.

A

IT

IT

LIST.

DOWN.

OUT.

Black letters. Top 1/3, yellow background, 2nd 1/3, blue, bottom 1/3, red.

Clear background. Large letters red. Small letters blue.

FLORA

IDENTIFY

POPULATION

39.

WATER

YOUR

FAUNA

NOISE

PEOPLE

LEGISLATION

PROBLEMS

EROSION

URBAN

BRIGHT

OK

Music with crowd noise over.

Voices raised above crowd.

"Too many people . . ."

"Fossil fuel is going . . ."

"Too much noise . . ."

"Disease . . ."

"Suicide . . ."

"Disease . . ."

"Suicide . . ."

"Disease . . ."

"Suicide . . ."

"Disease . . ."

"Suicide . . ."

"Disease . . ."

"Suicide . . ."

"Disease . . ."

"Suicide . . ."

"Disease . . ."

"Suicide . . ."

"Disease . . ."

"Suicide . . ."

"Disease . . ."

"Suicide . . ."

Blue background. Red letters

Yellow background. Black letters.

ORGA

40.

NIZE

• THE COMMUNITY?
• THE CLASS?
• A COMMITTEE?
YOU DECIDE

BEST COPY AVAILABLE

ERISTICS

Yellow background - Blue letters.

Music background

"Enlist some help."

GET
ADMINISTRATIVE
COMMITMENT

41.

Music background hold 4 seconds.

"Don't try to do it alone."

Hold above

42.

INVENTORY
YOUR
RESOURCES

Yellow background - Blue letters.

INSTITUTIONS
AGENCIES
PARENTS
MATERIAL
VISITATIONSITES

Music background

"People, agencies, and institutions in different locations and situations feel different ERistic needs."

IDENTIFY
THESE
NEEDS

43

ME SH
NESH

THE NEEDS
WITH PROBLEMS
YOU'VE SEEN

Music background

"If you've zeroed-in on some problems you've made a big start, but now what?"

(Skid Row - man with
wine bottle)

44

(Oil slick with oil
coated bird)

(Barrio housing with
kids playing in the
street)

EKISTICS

Music background

"You knew that sooner or later someone would say. . ."

Hold above

45.

Hold above

Hold above

(Change slides here)

"Write your goals and objectives."

Music up and hold.

GOALS:

- VALUES
- APPRECIATIONS
- KNOWLEDGE

46.

OBJECTIVES?

- WHO DOES WHAT?
- TO WHAT DEGREE?
- HOW DO YOU KNOW?

Music fade to background.

"You're well on your way to a viable inservice education program for Ekistics."

(Group around a table)

47.

(Adult group on field trip to water purification plant)

(Secondary teacher in classroom with ecology bulletin board)

Music background

"Preliminary questions need answers."

WHO WILL BE INVOLVED?

- BE SPECIFIC
- NAME PEOPLE

48.

EXISTICS

Music background up and hold.

Hold above

49.

FOR HOW LONG?

• DAY
• WEEK
• MONTH
• YEAR

Music hold.

Hold above

50.

Hold above

WHEN?
• AFTER SCHOOL
• WEEK-ENDS
• VACATIONS
• RELEASE TIME

Music fade to background.

"Some other tips for good in-service programs include: take time to listen."

(Pre-school age children - one whispering to the other.)

51.

Music background

"Pre-plan in detail but remain flexible."

Hold above

52.

(Willow trees bordering stream)

EXISTICS

Music background

"Don't be impatient.
Don't expect miracles."

Hold above

53.

Hold above

(Close-up of crawling
garden snail)

Music background

"Know what resources are
available."

(Library with browsers)

54.

(Forest ranger address-
ing group)

(Display of pamphlets,
etc.)

Music background

"Plan for active participation
by everyone."

(Adult group boarding
school bus)

55.

(Individual reading -
close-up)

(Small group in active
conversation medium
close-up)

Music background

"Remember you're working with
a management model. The
specifics will be yours."

WHAT

WILL

AT YOUR

56.

MOTIVATION

YOU

FIRST

TECHNIQUES

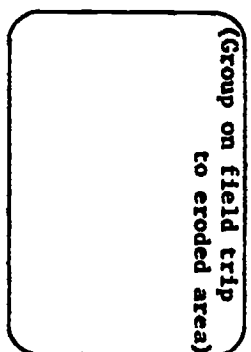
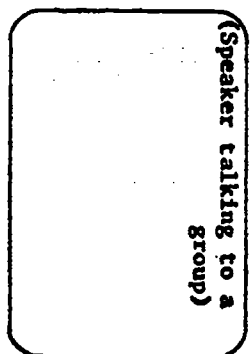
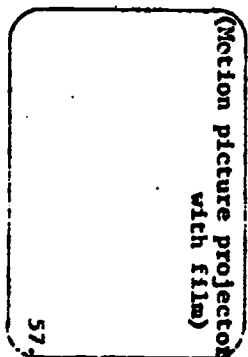
USE

MEETINGS?

Top 1/3, blue background. Middle 1/3, yellow background. Bottom 1/3, tan or brown

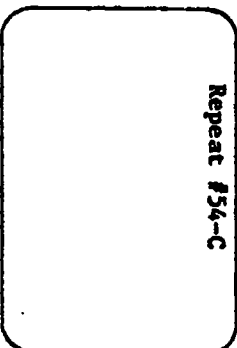
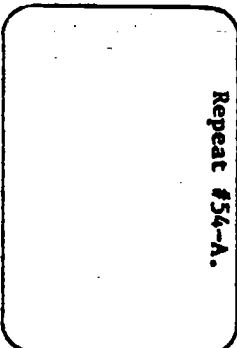
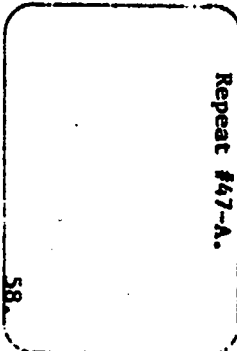
EKISTICS

Music up and hold.



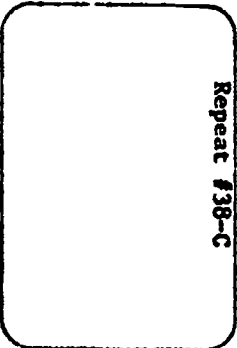
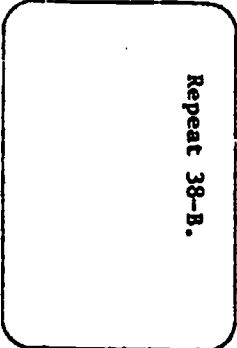
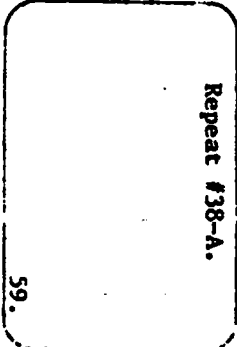
Music fade to background

"Motivation plus knowledge equals action. How will your group become knowledgeable?"



Music background

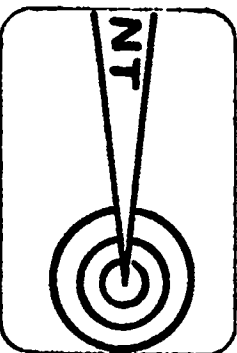
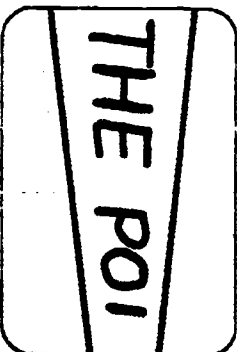
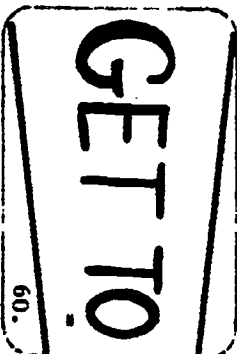
"Problems of an inservice group will not be stated the same as for planning group. Start with a local viewpoint."



Music background

"Move rapidly through motivation and recognition of problems to a search for educational solutions."

Yellow background. Blue "arrow" Red target. Black letters.



Music background.

"To assure a broad viewpoint and to allow educators to work in their subject field, consider at least three subject areas."

Music background.

"The natural sciences include, but are not limited to the fields of botany, chemistry, physiology, physics, earth science and zoology.

"The social sciences include, but are not limited to anthropology, economics, geography, history, psychology and sociology.

"The humanities included, but are not limited to the fine arts, literature, architecture, music, and many allied fields such as city planning, or television."

THE
NATURAL
SCIENCES
61.

THE
SOCIAL
SCIENCES

THE
HUMANITIES

DRAWINGS
CLOSE-UP OF
HAND POURING
SOLUTION IN
FLOWER
A TEST TUBE
62.

DRAWINGS
HUMAN
SKULL
ATOMIC
BOMB
MUSHROOM

DRAWINGS
PLANKTON
CLIFF
CYCLE
WITH
STRATA

(Archeological dig)

(Freighters in a busy
port)

(Navajo family and hogan)

63.

(New shopping center
and mall)

(L.A. County Art Museum
with sculpture)

(Golden Gate Bridge)

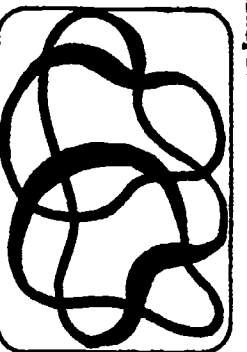
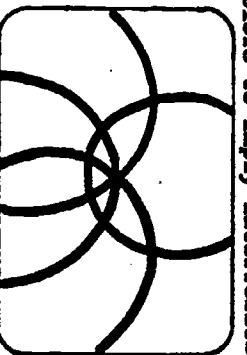
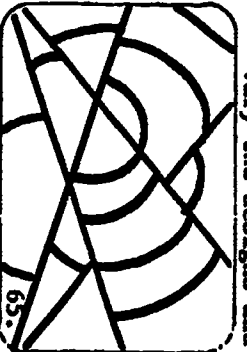
64.

EXISTICS

Vary the designs and colors to imply interrelationships.

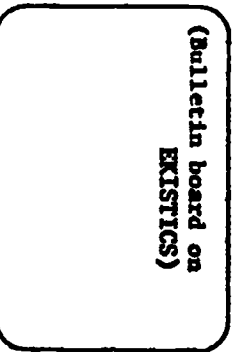
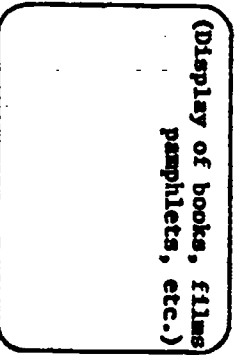
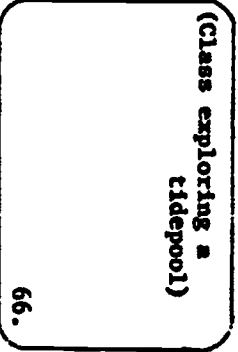
Music background

"The art of Existics inservice education and curriculum design is to interweave subject content to dramatize Existical relationships."



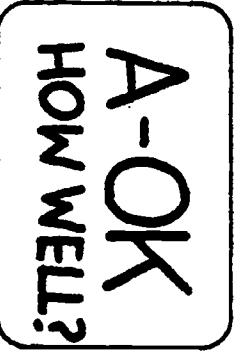
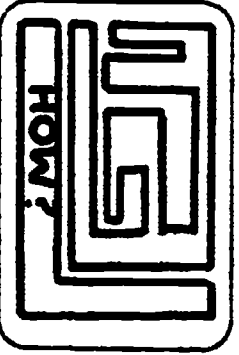
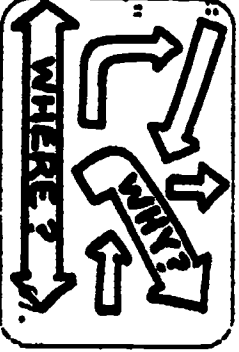
Music background.

"Solution strategies should include resource people and material, demonstrations, field trips, and the like."



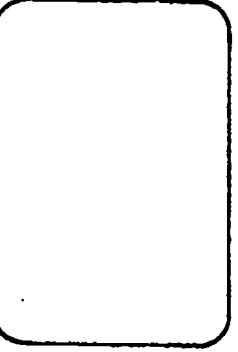
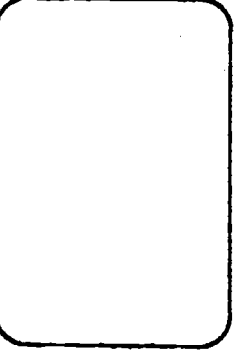
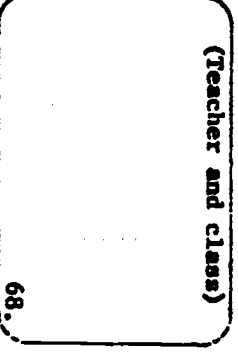
"Solution strategies have to include:

- x Why and where you're going
- x How you're going to get there
- x How successful the trip has been.



Music background

"Check signals at all points. Try out lessons."



EXISTICS

Music background

"Get community and agency feedback."

69.

Music background

"Check with District, County, State and National leaders."

Hold above
70.

Hold above

(Small group in an office)

Music background

NOTE: THE NEXT FEW FRAMES SHOULD INDIVIDUALIZE THE PRESENTATION TO YOUR LOCAL SITUATION.

PUBLISH
71.

(Teacher with students on field trip)
USE AND
EVALUATE

•IMPROVE
•UPDATE
•REPUBLISH

Script prepared by:

Ralph Taylor

Pomona Unified School District

72.

CONCEPT DEVELOPMENT STRATEGIES

Based on the premise that ekistics education should result in pupil behavior that protects the environment from pollution and depletion, concept development strategies were devised. In an effort to organize ekistics learning, goals were established to develop: awareness of the environment; understanding of adaptation of living things, including men, to the environment; knowledge of interdependence of living things, particularly human beings, and their environments; appreciation of variety in the environment; understanding of change in the environment; and environmental conscience -- realization of the individual's responsibility for maintaining the environment. As a means of demonstrating that pupils have acquired the desired learning, learning objectives were suggested.

Although the framework of EKISTICS, A HANDBOOK FOR CURRICULUM DEVELOPMENT IN CONSERVATION AND ENVIRONMENTAL EDUCATION, developed by Dr. Paul F. Brandwein, on which these concept development strategies were based, is designed on a progressive basis, levels or area designations have been omitted from the outlined suggestions offered in this section. Teachers will see possibilities for interweaving any one of the concepts with classroom work in any grade level and any subject area study. Review or repetition of the concepts is desirable not only to insure ekistics instruction for all pupils but to reinforce anticipated behavior objectives.

CONCEPTUAL FRAMEWORK FOR INSTRUCTIONAL PROGRAMS IN ENVIRONMENTAL EDUCATION KINDERGARTEN THROUGH GRADE SIX

CONCEPTUAL PATHWAY - A

Interdependence in interchange of matter and energy

Cognitive-Affective Scheme

Man is interdependent with his natural and physical environment.

Level 1 In any environment, living things have similar needs.

Level 2 There are a variety of environments, each with characteristic features and life.

Level 3 Life and environment interchange matter and energy.

Level 4 Life converts matter and energy into characteristic species form.

Level 5 The environment is in continual change, in present and past ages.

Level 6 Man is the prime agent of change of the natural environment.

CONCEPTUAL PATHWAY - B

Interdependence in social interaction

Cognitive-Affective Scheme

Man's social behavior is based to maintaining, altering, adapting, or destroying the environment.

Men live in different environments.

Men develop different modes of adaptation to life in different environments.

Men utilize the environment to secure their needs.

Men interact to utilize the world's available resources.

Social aims determine the utilization of resources.

Men modify the environment in order to utilize resources and increase them.

CONCEPTUAL PATHWAY - C

Interdependence in cultural components and forms

Cognitive-Affective Scheme

Men utilizes his symbolic and oral traditions to maintain or alter the environment.

Men interact mentally and emotionally to the objects and events in their environment.

Men seek out objects, events, and behaviors symbolic of beauty.

Men, responding to special environments, create objects and events symbolic of their interaction.

Cultures are characterized by their special ways of reacting to the environment.

Men create objects, events, and behaviors which satisfy their images of beauty and order

Men recreate the environment.

JUNIOR HIGH SCHOOL

Each cognitive-affective scheme embraces a unit of work within four areas of the curriculum: (1) social science, (2) science, (3) Humanities, and (4) health. It uses all the verbal, mathematical, and artistic skills. The appropriate placement of each unit depends on the curricular planning of the school.

Cognitive-Affective Scheme I Societies perceive environmental issues of their time on the basis of past experience.

Cognitive-Affective Scheme II The interaction of the culture with available technology determines the nature of the environment which is planned and developed.

Cognitive-Affective Scheme III Social issues and decisions alter the environment.

Cognitive-Affective Scheme IV Social issues and decisions determine the utilization of all resources.

HIGH SCHOOL - A One-Year Course

Cognitive-Affective Scheme I In any given environment, organisms are linked within an ecosystem.

Cognitive-Affective Scheme II Issues and decisions affecting the world ecosystem reflect the pressure of population upon resources.

Cognitive-Affective Scheme III Wise utilization of the environment is dependent upon the organization of shortage.

Cognitive-Affective Scheme IV The concepts and values man accepts as guides to his future behavior determines the quality of his life, if not his survival.

CONCEPT DEVELOPMENT STRATEGIES

To achieve the educational goal of causing pupils to become aware of the environment and its importance to them and to all living things, students should conceive that:

In any environment living things have similar needs.

Men live in different environments, each providing similar life needs,

Men interact mentally and emotionally to objects and events in their environment, and these interactions influence human environmental choices.

To demonstrate that they know what an environment is and does, pupils will be able to:

Describe requirements of all living things - sunlight, air, water, food, space to move in, shelter from other animals and weather, a refuge for rest and conditions for reproducing.

Describe requirements of men in any environment where they live - food sources, water supply, safety, sanctuary for rest and raising young, space in which to move and grow.

Describe human environmental needs for conditions that allow contemplation, creativity, recreation, self-expression.

Describe what happens if a plant or animal is deprived of one of its needs.

Name different environments where men live - geographic, topographic, climatic. Relate the availability of life needs to human population in each.

Identify objects and events in different environments - at home, at school, on the playground, in a park. along the street - that are pleasant to look at, feel, smell, hear. Identify objects and events that are unpleasant.

Relate the effects of pollution to availability and/or usability of life needs in an environment.

Relate effects of pollutants in an environment to decreased life support for men living in the area.

Associate human choice and environmental qualities.

From understanding that all living things share the earth's supply of air, water, soil, sunlight, space, etc., and that these resources are finite, pupils will develop practices of conservation and protection of natural resources and natural life processes. They will act to:

prevent or correct pollution - air, water, soil, sound, visual - in all environments; prevent depletion of water and soil in all environments; encourage plant life cultivation wherever practical; protect natural wildlife food supplies, reproduction conditions, and refuge wherever practical; encourage open space wherever possible; foster aesthetic environments, lessen odious environmental conditions.

CONCEPT DEVELOPMENT STRATEGIES

To achieve a goal of causing pupils to understand adaptation of living things to environmental conditions, pupils should conceive that:

There is a variety of environments, each with characteristic features and life.

Men develop modes of adaptation to life in different environments.

Men seek out objects and behaviors of beauty as a means of adapting to a physical environment.

To demonstrate that they understand how and why living things adapt to different environments, pupils will be able to:

Identify various environments -- the human body, a drop of water, a tree, a pond, a rock, a cave, a forest, a seashore, etc.

Describe different ways men obtain food, provide for their water needs, build homes, cover their bodies, work and play in different environments.

Describe beauty of line, color, texture, light, sound, etc., admired by men in trees, clouds, sunset and sunrise, rainbows, fish swimming, birds flying, ripples in water or on sand, reflections on water, birds singing.

Define community, habitat, home.

Contrast life of people in cities with life in rural areas, in hot climates and cold temperatures, dry and wet areas, highlands and lowlands.

Describe men's efforts to improve the environments he lives in by landscaping, tablesetting, meal service, home furnishing, clothing design, architecture.

Define and describe various environments -- climate, altitude, terrain -- and associate living things inhabiting each.

Imagine or describe from experience how men adapt to new environmental conditions resulting from emigration, natural catastrophe, or technological causes.

Suggest ways men can help insure continued presence of beautiful objects and events in the environment.

Describe the value of various environments and the danger or loss that can result from destruction of an environment.

From understanding that living things, particularly men, are capable of adapting to various environmental conditions, pupils will develop practices of environmental and resource use to promote the well-being of the total environment. They will act to help:

preserve plant and animal life wherever and whenever possible; preserve forest, foothill, seashore, marsh, ocean, desert and all environments; discourage practices of men that cause unhealthy conditions in an environment; discourage practices of men that may destroy an environment; encourage good "earth housekeeping" practices wherever and whenever possible.

CONCEPT DEVELOPMENT STRATEGIES

To achieve a goal of developing comprehension of interdependence in the environment, pupils should conceive that:

Life and environment interchange matter and energy.

Men utilize the environment to secure their needs.

Men, responding to special environments, create objects and events symbolic of their environments.

To demonstrate that they comprehend the dependence of living things, including man, on a balanced environment, pupils will be able to:

Name and describe functions of matter and energy interchange -- carbon cycle, nitrogen cycle, food cycle, food chain, ecology, ecosystem.

Describe ways people use land, water to secure their needs and wants -- agriculture, mining, pumping, damming, cutting, etc.

Name and describe holidays, religious ceremonies, musical compositions, dances, dramas that symbolize environmental events.

Describe life and materials exchange in a particular community.

Associate use of natural resources to food, housing, clothing, transportation, power needs of people.

Recall or find artistic creations that symbolize the artist's response to an environmental event or object.

Imagine or describe from reading or films how a land destroyed by a volcano is colonized with new plant and animal life.

Compare ways primitive people used natural resources with use by modern men. Contrast metropolitan use of resources with rural use.

Relate poetry or prose descriptions of responses to objects or events in an environment.

Imagine or describe from experience or reading how interruption or disruption of life processes by pollution or deterioration can destroy an environment.

Imagine or describe from experience or study what can happen to an environment if men gather -- harvest, mine, or pump -- natural resources and remove them without provision for replacement.

Create expressions of responses to the present, existing environment.

From understanding that living things and their environments are interdependent, pupils will develop practices of ecological preservation. They will act to help:

maintain natural ecological balances by preventing pollution and allowing cycles and chains to function undisturbed; cultivate practices of frugal use of endangered natural resources at all times; prevent or repair disruption of food chains or cycles by reducing pollution of life supports in the community; create a record of contemporary man's emotional and cultural interdependence with the environment.

CONCEPT DEVELOPMENT STRATEGIES

To achieve a goal of developing knowledge of organization and variety in the environment, pupils should conceive that:

Life converts matter and energy into characteristic species form.

Men interact to utilize the world's available resources.

Cultures are characterized by their special ways of reacting to the environment.

To demonstrate that they have acquired knowledge of the organization and variety in the environment, pupils will be able to:

Classify species of plants and animals in an environment.

Describe different characteristics of different species in an ecological community.

Define and explain symbiosis.

Name and describe organizations of men formed for the purpose of utilizing natural resources -- governmental, agencies, trade associations, unions, commodities markets, etc.

Name and describe utilities and power companies that use natural resources.

Name and describe cultures that are specifically identified with response to their particular environment.

Relate religious observances practiced by particular cultures as reaction to an environment.

Relate functions of a particular plant or animal to the balance of nature in its habitat. Imagine or describe from experience what happens to an environment when a particular species is eliminated.

Relate utilization of natural resources to transportation of people and goods.

Suggest the kind of organization that should be formed to manage utilization of the world's natural resources.

Associate art objects, music, dances, drama, ceremonies of a particular culture to its people's reaction to an environment.

Describe the culture characterized by contemporary men's reaction to their environments.

From understanding the values of variety in the environment, pupils will develop practices of environmental protection to insure survival of species, societies, and cultures. They will act to help:

prevent or correct pollution of life support for all species everywhere; prevent exploitation of natural materials that threaten survival of species; select and encourage development of housing, energy, transportation that does not endanger survival of species; encourage practices to preserve human cultures.

CONCEPT DEVELOPMENT STRATEGIES

To achieve a goal of developing recognition of change in the environment, pupils should conceive that:

The environment is in continual change in present and past ages.

Social aims determine the utilization of resources.

Men create objects, events, and behaviors which satisfy their images of beauty and order.

To demonstrate that they recognize the effects and values of change in environments, pupils will be able to:

Name and describe environmental changes caused by movement of Earth in the solar system, by earthquakes, erosion, drought, etc.

Name different forms of government and describe different ways they manage the use of resources.

Name cultural periods and describe art, architecture, and literature produced to record the people's ideas of beauty and order in their environments - American Indian, Aztec, Shinto, etc.

Describe environmental changes resulting from evolution, overpopulation, technical developments.

Name currently operating governmental agencies of federal, state, and local governments that regulate utilization of resources.

Describe different forms of art, music, literature that demonstrate creation to satisfy expression of beauty and order in different cultures.

Imagine or report a prediction based on research of a probable change in the environment that will affect the support of life in Southern California.

Describe political organization for purposes of utilizing resources.

Create a picture, a poem, a drama, a musical composition to express contemporary images of beauty and order.

Associate struggles for national or world power to possession or acquisition of resources.

Contrast resources use by affluent and frugal societies.

From understanding that all environments are in continual change from physical forces, fluctuating social values, and variations in cultures, pupils will conserve resources, protect the environment, and preserve records of human cultures. They will act to:

require consideration of effects on the environment by anyone planning to alter the environment - selecting sites for industrial, housing, or recreational development; prevent deterioration of natural habitats and extinction of species that may result in undesirable environmental changes; encourage austerity and frugality when appropriate to preserve an environment or species; foster respect for changing human cultures and the art, literature, and historical records they produce.

CONCEPT DEVELOPMENT STRATEGIES

To achieve an educational goal of causing pupils to acquire an environmental conscience, students should conceive that:

Man is the prime agent of change in the natural environment.

Men modify the environment in order to utilize resources and increase them.

Men recreate the environment.

To demonstrate that they have attained an environmental conscience, pupils will be able to:

Identify environmental changes from technological developments, good and bad - climate control, plastics, irrigation, transportation, communication, agriculture, etc.

Relate commercial practices to effects on environments - harvesting ocean resources, land development, timber cutting, water management, mining, energy production, etc.

Cite examples of recreating the environment that affect aesthetic values - city planning, urban deterioration, open space use, home construction, waste disposal facilities, recreational resort developments, etc.

Describe environmental changes anticipated from pollution, wasteful use of resources, displacement of species, increasing populations, etc.

Describe commercial developments that benefit environments and provide resources for man's use.

Compare modern-day building with construction of primitive men and relate to environmental changes.

Name and describe technological developments and related occupations expected to benefit the environment.

Name and describe occupations in government and business that contribute to improvement of environments.

Name and describe work fields that contribute to improving and enhancing the environment.

From understanding that: man is responsible for nearly all unnatural changes in the environment, pupils will develop practices of choosing behavior that will insure survival of humanity and provide a sanative human environment. They will act to help:

foster cultivation of natural processes in all environments; discourage potentially harmful technological processes by avoiding purchase or use of the products; encourage cultivation of a humanized, altruistic social environment; discourage "plastic" environments; discourage production or use of chemicals that cause harmful changes in children, adults, plants, water, air, wildlife, ecological balance; encourage individual work commitment to protecting, maintaining, and improving the environment.

CLASSROOM STRATEGIES

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The activities suggested for class or students are samples of observation projects, discussion topics, reading, films, participation projects, and field trips that may help students develop concepts and accomplish objectives to achieve the goals established for ekistics.

The activities are suggested to correspond with concept development strategies; however, there is a great deal of interweaving involved and teachers will need to adapt their teaching strategies to the pertinent or relevant situation as it arises. Hopefully a kindergarten teacher might adapt an activity to her teaching plan and a junior college instructor for ecology could encourage students to pursue the same investigation in advanced study.

The Suggested Ekistics Activities that follow the classroom strategies are not categorized or classified in any planned arrangement. Obviously, the activities included are only a small portion of the large total of discussion topics, experiments, investigations, games, problems, creative efforts, etc., that can serve to develop ekistics learning.

Many ideas for classroom activities are also suggested in the concept development strategies section and in annotations in the resources section.

CLASSROOM STRATEGIES TO DEVELOP AWARENESS OF THE ENVIRONMENT

IN ANY ENVIRONMENT LIVING THINGS HAVE SIMILAR NEEDS

MEN LIVE IN DIFFERENT ENVIRONMENTS

MEN INTERACT MENTALLY AND EMOTIONALLY TO THE OBJECTS AND EVENTS IN THEIR ENVIRONMENTS

Observation

Plant seeds, care for classroom pets, watch families of living things on the school grounds.

Take a walk around the perimeter of the school and analyze differences in environmental conditions. Look at pictures of people living in different environments.

Walk through the schoolgrounds and react to pleasant and unpleasant experiences, using the senses.

Discussion

Determine the basic vital needs for life -- establish what makes a thing living rather than non-living.

Decide what specific conditions are necessary in any environment where men live. Compare different ways these conditions are provided in different environments, citing various conditions found in the neighborhood or in the students' personal experience.

Discuss individual likes and dislikes in the environment. What is liked? Why is something unpleasant to look at or hear? Why does something bring displeasure when it is seen or heard or felt or smelled?

Supplementary reading

Books suitable for the age group that describe and explain basic needs for life.

Books that describe and compare different kinds of homes and places where people live.

Books that stimulate thinking about beauty in things in the environment and ways individuals can choose environmental conditions.

Film Materials

16mm films, filmstrips, film loops, slides showing environments providing living things their needs of survival.

Film materials that show children and adults living in different kinds of environmental conditions -- cities and rural areas, hot climates and cold, high places and at the seaside.

Films illustrating elements of art in the environment and offering stimulation toward appreciation of beauty in the environment.

Projects

Clean up a small polluted area -- a pond, ditch, alley, corner of the schoolgrounds -- and watch the results. Plant a tree and observe environmental changes that result. Plant a school garden. Provide food and shelter for a wildlife family and observe the animals' activities.

Make picture books showing people satisfying common needs like getting food for themselves and their families in different kinds of environments -- city and farm, primitive and civilized, seaside and forest, jungle and arctic -- building homes, providing protection for their bodies.

Find things in the immediate environment of the school that pupils agree are enjoyable and decide as a group how to preserve the object or event. Find things in the environment that are unpleasant and decide whether they should be corrected or eliminated.

Field trips

Walk around the school neighborhood, look for examples of living things seeking food, warmth, light, water, air, rest, a home for a family.

In a walk around the school neighborhood compare and contrast environments people live in -- how they get food, kinds of houses they live in, how they travel, what kind of protective clothing, where they rest.

In the walk around the neighborhood look for things that are unpleasant that people can change into things that are enjoyable if they choose to take the effort.

CLASSROOM STRATEGIES TO DEVELOP UNDERSTANDING OF ADAPTATION TO DIFFERENT ENVIRONMENTS

THERE IS A VARIETY OF ENVIRONMENTS. EACH WITH CHARACTERISTIC FEATURES OF LIFE

MEN DEVELOP DIFFERENT MODES OF ADAPTATION TO LIFE IN DIFFERENT ENVIRONMENTS

MEN SEEK OUT OBJECTS, EVENTS, AND BEHAVIORS SYMBOLIC OF BEAUTY

Observation

Study the environment of a tree on the schoolgrounds and the life it supports -- environments of a pond, a fish bowl or aquarium, a section of earth or grass.

Observe different life styles of people in different environments within the experience of the students.

Observe decorations, art objects, sounds that people have selected for personal enjoyment. Relate to aesthetic qualities.

Discussion

Consider different kinds of environments we can see within our own neighborhood, in Southern California. Define words used to describe different environments. Compare kinds of organic and inorganic conditions found in different environments.

Discuss different kinds of environments students have lived in, what different things are in present-day environments, environments lived in by parents or ancestors. Compare and contrast environmental conditions.

Talk about objects children and adults copy from nature to decorate their environments -- birds, flowers, trees, rocks. Discuss how men try to record such events as sunset, storm, rainbows, clouds. Discuss elements of beauty (art) in objects in the environment. Explore aesthetic aspects of behaviors such as birth, attraction, rest, sleep, blossoming, break and end of day, flight.

Supplementary reading

Books that describe and explain the features and life of different environments.

Books that describe common and exotic differences in life cycles of people living in different environments in the pupils.

Books that stimulate interest in the beauty that exists in the environment.

Projects

Shake a tree and take a census of the life that survived in that particular environment. Dig up a square foot of earth and analyze the life and conditions it contains. Select an environment that is threatened with destruction and plan and act to save it.

Imagine what and how you would eat, dress, travel, build houses, etc., if you lived in Eskimo country, a South Seas Island, underground, on top of a mountain. Build a stage setting or create a model of the imagined environment. Play-act living in the created environment.

Select and mount some one thing the individual considers to be beautiful. Pupils should describe qualities he or she thinks makes the item beautiful. Compose an exhibit of photographs showing sunsets (or flowers, or reflections in water, birds, trees, clouds, etc.)

Field trips

Visit California Museum of Natural History.

Visit Southwest Indian Museum.

Visit an art museum.

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CLASSROOM STRATEGIES TO DEVELOP COMPREHENSION OF INTERDEPENDENCE IN THE ENVIRONMENT

LIFE AND ENVIRONMENT INTERCHANGE MATTER AND ENERGY

MEN UTILIZE THE ENVIRONMENT TO SECURE THEIR NEEDS

MEN, RESPONDING TO SPECIAL ENVIRONMENTS, CREATE OBJECTS AND EVENTS SYMBOLIC OF THEIR INTERACTION

Observation

Study the exchange processes involved in plant growth, animal growth, as seen in classroom plants and pets.

Consider materials provided in the natural environment that men use for food, housing, clothing, transportation, play, etc., that can be seen on a walk around the neighborhood.

Observe buildings that reflect interaction of people with their environments -- parks and gardens, sculpture, paintings, murals.

Discussion

Define the meaning of words associated with the environmental interdependence like photosynthesis, habitat, food chain, food pyramid, decomposition, ecology, ecosystem, ecological community.

Talk about uses of environmental resources for food that allow replacement -- uses that destroy without renewal. Consider uses of forests, minerals, oil, furs, stones, etc., and harm that can result to the environment from which they are taken.

Discuss artistic creations observed as they relate to special environments they symbolize. Discuss religious ceremonies, conducted by present and past cultures that are symbolic of environmental response. Discuss music reflecting response to an environment.

Supplemental reading

Books describing chemical and physical exchanges involved in photosynthesis, plant growth, animal growth, food chains, balance of nature.

Books describing and explaining ways men use the environment for food, housing, clothing, transportation, tools, recreation.

Books describing artistic creations of men that are inspired by special environments -- poetry describing environmental events.

Films

Films illustrating processes of environmental exchanges and the results. Also, films that show results of interference with the natural processes.

Films showing ways men harvest, cultivate, mine, pump, drain, flood, dam, gave the environment to secure their needs and wants.

Films showing relation to special environments of artistic creations of the people inhabiting the environment.

Projects

Develop a chart showing a food chain observable in the experience of the students. Experiment with interference in a natural balance process. Assume class or individual responsibility for correcting a man-caused interference resulting in destruction of an environment.

Using a photograph of a familiar scene, apply number references to use for a natural resource and the way it was obtained. Try to show the scene or a similar one after all the desired resources have been removed. Undertake a class project of conserving use of electricity, gas, gasoline, paper, plastic, metals, water -- compile records.

Create an object or an event that expresses the individual student's interaction with the environment.

Filed trips

Visit a wilderness area. Visit a nature center.

Visit the Museum of Science and Industry.

Visit Huntington Library or a special religious shrine symbolizing a particular environment, attend Indian ceremonial dance exhibit.

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CLASSROOM STRATEGIES TO DEVELOP APPRECIATION FOR VARIETY IN THE ENVIRONMENT

LIFE CONVERTS MATTER AND ENERGY INTO CHARACTERISTIC SPECIES FORM

Examine marine plants and animals that can be seen in an aquarium -- relate compatibility of various types.

MEN INTERACT TO UTILIZE THE WORLD'S AVAILABLE RESOURCES

Look at ways men work together to cut and mill lumber, fish the seas, cultivate the land, pump oil, mine the earth, dam rivers, drain swamps, kill animals for fur and leather.

CULTURES ARE CHARACTERIZED BY THEIR SPECIAL WAYS OF REACTING TO THE ENVIRONMENT

Think about the way people today regard their environment and its resources and the way Indians respected the earth and the life it supported. Observe Japanese respect for nature, for plant life.

Discussion

Name and classify species. Define symbiosis. Talk about the specific function each species performs in an ecological system.

Discuss business and commercial organizations formed to produce food for people of our nation. Define commodity market, fish and game department, water project, land reclamation, mineral rights, etc.

Discuss Japanese culture in relation to their reaction to the environment -- Sumi ink painting, Haiku poetry, gardens; Navajo Indians; Polynesian peoples; African Tribal cultures; Eskimos; Nordic peoples.

Supplementary reading

Books about different species of insects, bacteria, plants, birds, trees, rock, soil, animals, mammals, flowers, reptiles.

Books describing commercial, industrial, and governmental organization to use resources.

Books describing cultures that are different because of the way they react to the environment.

Films

Films showing a classification of a species of plant or animal life, particularly if the presentation provides information about usefulness of the species in an ecosystem.

Films that tell about ways men join forces to harvest the earth's resources -- commercial, governmental, or family-land-cult coalitions for resource use.

Films showing foreign and past cultures and records of their reaction to the environments the people lived in.

Projects

Choose an endangered species of plant or animal life to save and plan and act to encourage its survival.

Follow the processes involved and the interaction required to produce bread for men in the city. Simulate a governmental agency action to provide water for a new city in the desert or a new power plant to provide air conditioning for a new community.

Paint a mural showing reaction to the pupils' community environment. Depict an imagined future culture, trying to show what pupils think an ideal environment would look like.

Field trips

Visit Sea World and the San Diego Zoo. Visit Marineland and the Los Angeles Zoo. Visit the Arboretum.

Visit a lumber company or mill or public relations office. Visit a metropolitan water supply facility. Visit a supermarket vegetable section or the central produce market.

Visit foreign or ancient culture society exhibits at an art museum or special showing.

CLASSROOM STRATEGIES TO DEVELOP UNDERSTANDING OF CHANGE IN DIFFERENT ENVIRONMENTS

THE ENVIRONMENT IS IN CONTINUAL CHANGE IN PRESENT AND PAST AGES

Observation

Return to examine an area observed previously and note changes that have occurred since the first visit.

SOCIAL AIMS DETERMINE THE UTILIZATION OF RESOURCES

Think about changes that have taken place in your family's use of resources that can be attributed to changes in social or economic status of the neighborhood.

MEN CREATE OBJECTS, EVENTS, AND BEHAVIORS WHICH SATISFY THEIR IMAGES OF BEAUTY AND ORDER

Think about changes that have occurred in the way individuals feel about clothing, decorations, pictures, manners, ceremonies, living with the family, games, etc.

Discussion

Talk about all the ways a physical environment can change -- weather, geographic alterations, disasters, seasons, day and night, tides.

Discuss different kinds of government and the effects changes in the forms have on use of resources -- of a community or nation. Consider differences in use of resources that result from poverty and affluence -- and what differences in wealth of a community or nation result from use of available natural resources.

Discuss kinds of treasures, ceremonies, costumes that result from changes in religious practices of people. Consider changes that occur in architecture when cultures change, changes in manners and social practices, in art forms.

Supplementary reading

Books naming and describing changes occurring in the physical environment.

Books naming and describing changes occurring in the social environment that result in changes in the physical and cultural environment.

Books suggesting relationship of cultural changes to social and physical and/or social environments.

Projects

Select a change in the physical environment that the class or individuals believe should be stopped or slowed (or accelerated) and plan and act to accomplish the task.

Select a use of a natural resource or a source of pollution that the class or individuals feel should be controlled by governmental action (laws) and act to effect the change.

Select as a class or individual project the change or improvement of the classroom environment -- its arrangement, its decoration, and its conduct.

Field trip

Visit the Museum of Natural History. Participate in an Outdoor education program.

Visit the Museum of Science and Industry.

Visit an art museum.

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CLASSROOM STRATEGIES TO DEVELOP AN ENVIRONMENTAL CONSCIENCE

MAN IS THE PRIME AGENT OF CHANGE IN THE NATURAL ENVIRONMENT

MEN MODIFY THE ENVIRONMENT IN ORDER TO UTILIZE RESOURCES AND INCREASE THEM

MEN RECREATE THE ENVIRONMENT

Observation

On a tour of the area -- including urban area, shopping areas, manufacturing areas, recreational areas, quarries, railway yards, freeway exchanges -- observe changes made by men in the environment that existed naturally.

On a tour of an area observe changes wrought in the environment by agriculture, manufacture, mining, transportation, storage, etc.

On the tour of an area observe examples of creation of an artificial or altered environment -- a park, a dome, a marine sanctuary, a wildlife sanctuary, air conditioning, humidity control, waste disposal processes, water reuse, noise control.

Discussion

Discuss the good and bad ways men change the environment. Talk about ways men can help natural processes to achieve ideal physical environmental conditions.

Discuss dangers or threats to the survival of men and living things if current practices of resource use continue.

Discuss good and bad ways that men recreate the environment.

Supplementary reading

Books describing effects of technological advances on the ability of Earth to support life.

Books describing effects of economic greed and social indifference or immorality on the supplies of life support on earth.

Books describing aesthetic implications of technology, man's creative ability, possible solutions to environmental problems.

Films

Films illustrating technological changes in the environment -- good and bad.

Films showing good and bad modifications of the environment to harvest, store, transport, process, manufacture, and market commodities and goods.

Films demonstrating good and bad recreation of the environment by men.

Projects

Assume responsibility for effecting a desirable change in the physical environment. Select a career that would enable an individual to help effect desirable change in the environment.

Assume responsibility for developing a personal regime that does not encourage overpopulation, overuse of resources, destruction of the environment.

Assume responsibility for personal effort to recreate a part of the environment so that it will satisfy aesthetic needs and contribute to enhancement of the natural environment.

Field trips

Visit a downtown urban center.

Follow the processes involved in agriculture on desert land.

Visit Richfield Plaza. Visit the Arboretum. Visit a marina. Visit an aquarium, a zoo. Visit an environment created within a capsule with technically controlled conditions.

ACTIVITIES

Level 1 - In any environment, living things have similar needs.

Compare needs of a child, a puppy, a seedling starting to grow, a tadpole. Which ones are common to all? Develop a chart showing results or findings of the investigation.

How does a tree get food?

Use a large diagram to describe the process.

How do seaweeds get food?

Create a collage of water scenes
- contrast clear, clean water with
dirty polluted water.

Make a picture book showing different ways different living things use air: contrast the way people breathe with the way fish breathe. Find out how seed- breathe, how eggs breathe. Compare the way plants breathe with the way animals breathe. What conditions decrease the availability of oxygen to living things?

Visit a greenhouse.

Describe the way a raccoon sleeps,
a bear, a worm, a bird. Make a
collection of pictures showing
different ways different living
things rest.

List things that you
cannot see, then photograph
them.

Pretend you are a flower trying to get sunlight.
A deer trying to get a drink of water.
A butterfly moving from place to place.
A kitten sleeping.
A sparrow feeding her babies.
A snake protecting himself from danger.
A rabbit in its home.
An owl keeping warm.

Make a study of the plants in the area.
Which grow fastest in the local climate?
Which fail to grow? What aid can be given
to increase growth of stunted plants? What
can be done to deter growth of unwanted
plants.

Develop a story about the travels of a drop of water. draw pictures to illustrate.

ACTIVITIES

SCIENCE

Level 2 - There are a variety of environments, each with characteristic features and life.

Find a tree or shrub and list all the things that live in it.

Ask the class to pretend they have come to visit Southern California from another area and were required to make a report on the different kinds of environments they found, with descriptions and illustrations of the features and life found in each.

Draw a map of the schoolgrounds and shade in different colors to show different kinds of environment and indicate a name for each different kind.

Mark off squares of 10' x 10' on the schoolgrounds, trying to separate different environmental conditions such as sidewalk, pavement, lawn, ditch, hill, gully, shade, full sun. Investigations can be varied.

Investigate to learn what characteristics enable certain plants to live in the desert - in the ocean - in fresh water - in moist woodlands - on a windy plateau, on the foothills in Southern California.

Describe the different features and life found in different environments in one location: such as shade-sun, underground-above ground, convex-concave land formations.

Visit the seashore.

Take an underwater trip at Catalina.

Hike into canyons of the San Gabriel Mountains.

Take an environmental study trip in Southern California to observe and investigate the diverse environmental conditions and special characteristics of adaptation.

ACTIVITIES

SCIENCE

Level 3 - Life and environment interchange matter and energy.

Dig up earth approximately a foot square and one foot deep. Bring all this material into the classroom. Spread out a large piece of heavy paper either on a large table or on the floor. Let the students sort out non-living material into smaller piles on the paper. Have plenty of clean, empty containers (like baby food jars) in which to place items still alive. Investigations can be quantitative, relative, causative.

Have each student sit in front of a square foot of earth on the school-grounds for five minutes and report what was observed. The report can include a list of different live things and once-living things, ex-changes of energy, interrelation-ships, life supports, etc.

Develop a chart to show living things as producers, consumers, or decomposers. Gather and re-cord data. Indicate which plants and which parts of the plants are eaten by herbivores, which of the carnivores eat herbivores, etc.

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Plan an attack on a particular unwanted insect. Find a way other than using an insecticide to reduce the population of the insect.

Prepare a pack of about forty cards or small counters, each with a printed name of some animal which may be found in the vicinity with four or five cards bearing the names of vegetable foods such as nuts, grass, leaves, seeds, berries. Starting with a card bearing the name of the vegetable food, each player picks up another card or counter bearing the name of an animal that feeds on that kind of vegetation. For instance, if the first player chooses nuts, the next might choose squirrels, the next snakes, then owls and on until no predator can be found that eats the animal chosen last. There should be a card with "man" and "mosquito". In order to prevent students from making wild guesses and deciding at random which animals prey on another, a list of animals and their foods might be compiled for them to study as they play the game. They should be helped to see that there are no good or bad animals or plants; and that each species has its place in a link of a food chain which, if unbroken or not interfered, will constitute a condition beneficial to all.

ACTIVITIES

SCIENCE

Level 4 - Life converts matter and energy into characteristic species form.

Spread a white sheet under a small tree or bush and shake the plant. Insects of all sizes and characteristics will drop onto the sheet. Make a quick inventory of the insects -- name those recognized and use the name of a distinguishing characteristic to identify unfamiliar species. Start with flying insects that may escape before you can list them.

Find a million things -- prove your find.

Visit a zoo.

Ask pupils to pretend they do not know the names of things outdoors. Let them walk around and view plants, places holding water, the ground. Either orally or in writing ask them to give names to the things they see and define the reasons for the names given.

Go outside and, without disturbing them, try to find as many kinds of eggs as you can. Identify them.

Collect as many different kinds of seeds as you can find on the schoolgrounds. Plant some of them in the classroom and observe their growth and the changes that take place.

Visit Los Angeles County Arboretum.

Visit South Coast Botanical Gardens.

Visit the ocean science museum on the Queen Mary.

Visit Cabrillo Museum.

Visit McCurdy Nature Study Center. Placita Canyon Nature Study Center.

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ACTIVITIES

SCIENCE

Level 5 - The environment is in continual change, in present and past ages.

Find something in the environment that is increasing in number and prove it. Find something that is decreasing, prove it. Classify the increases and decreases you found as desirable, undesirable, acceptable. Find some things that increase in size but not numbers. Some things always increase, some always decrease. Identify these.

Place a string marker around an area for observation. List all the changes noted during a specified period of time.

Make some soil.

Find the oldest thing on the schoolgrounds - the youngest thing.

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Draw a map of the vegetation at the school location. What do you expect it to look like in ten years? What changes would you like to make? Draw a vegetation map showing what you would like the area to look like.

Find living things in your environment that change.

Take a walk around the schoolgrounds and record in words, photographs, or drawings changes noted in the environment - color, erosion, moisture, drying, direction of growth, growth of vegetation, decomposition, etc. Look especially for changes that indicate action of natural forces of wind, weather, heat, rain. Then note changes made by man, directly or indirectly.

Describe the environment of your home and school as you think it existed two hundred years ago. Who lived here, what water was there, what foods did men eat? Develop a report explaining the changes that have taken place between then and now.

ACTIVITIES

SCIENCE

Level 6 - Man is the prime agent of change in the natural environment.

On a preplanned field trip around the schoolgrounds -- or through the city and into the suburbs -- survey effects of man-caused deterioration of the environment. What beneficial effects from man-caused changes can be seen? Develop recommendations from the findings.

Experiment with a garden grown without pesticides.

Separate kinds of trash found on the schoolgrounds and arrange it in different classifications.

Arrange an exhibit of photographs showing technological influences on the environment.

If some animals not able to live in smoggy air were confined to an artificial, smog-free environment, what can be done with wastes? Solids? Carbon dioxide? Urine? Where would the food come from? Oxygen? Water? What would be needed in the "greenhouse"? What plants? What other animals?

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Research pesticides -- different types, ingredients involved in making them effective, specific ingredients for particular "pests", danger to breathing organisms, term of effectiveness, continuity in food chain.

Research preservatives -- chemical additives to foods to control insect growth, to prevent deterioration of the product, to make it more attractive to consumers. Which ones are harmful in large quantities? What are safe quantities? What possible alternatives are there to additives?

ACTIVITIES

SOCIAL SCIENCE

Level 1 - Men live in different environments.

On a study trip from Santa Monica or San Diego to San Bernardino or Lancaster (or the other way) observe the different environments in which people live in Southern California -- central city hotels and apartments, single-family residence areas in the city, industrial areas, suburbs on flat land, hillside suburbs, seaside dwellings (resort, apartment, single-family homes), arid land, foothill canyons, mountains.

Develop a report describing the environment in which the school is located.

Examine causes for characteristics of the local environment.

Develop a report describing the environment in Southern California at the time the first settlers arrived, during the gold-rush period, and in the early 1920's.

Interview someone who lived in an environment very different from the local one.

Draw a map of Southern California showing different kinds of residence environments. Draw a map of Southern California showing different geographic environments.
Draw a map of Southern California showing present zoning for land use. Draw a map of Southern California showing different climate environments.

Draw maps of California, the United States, the world showing different kinds of environment where men live -- geographic, climatic, social, economic.

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ACTIVITIES

SOCIAL SCIENCE

Level 2 - Men develop different modes of adaptation to life in different environments.

Visit an
Indian
museum.

Produce a playlet with two groups of characters, one from an Eskimo village in North America and another from an island in the Pacific. Set the "stage" to show shelter, clothing, community organization, of each and try to develop dialog that will convey the differing needs of each group. Have them explain how they feel about their natural environment.

Visit a
historical
museum.

In studying a particular area of the United States, environment and needs of people living there may be differentiated. For example, comparison or contrast may be drawn between Navajo Indians and people who live in Arizona cities like Phoenix. Show effects of the different modes of life on the natural environment.

With a map of Los Angeles County without color, shade areas to show different styles of life that depend on the different environments in which the people live.

Suppose men achieve an even higher degree of technology than we envision at present and describe adjustments that have been required to survive in the man-made environment. What still needs to be discovered? Accomplished?

Develop a chronological chart showing the dates when environmental changes were initiated by people migrating to Southern California -- irrigation, water transportation, farming, waste disposal, housing developments, transportation.

Write a report on the environment you found when, two hundred years ago, you visited Indians living where San Gabriel is now. Write a report of what you found when you visited San Gabriel in 1980. Attempt to express approval of the changes you find, justifying modern changes.

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ACTIVITIES

SOCIAL SCIENCE

Level 3 - Men utilize the environment to secure their needs.

Suppose you were returned in time to the days of the dinosaurs? How did you find food? What foods did you eat? What did you wear to protect your body? Where did you live - protect yourself from the cold, sun, or moisture? How did you protect yourself from natural enemies?

When colonists arrived in America, what resources did they use for food? For clothing? For homes? What changes did they cause in the environment they found?

Visit Los Angeles County Museum of Science and Industry.

Make a chart showing how industry depends on trees as a natural resource.

Compose a commercial for a chemical manufacturer that will convince citizens of a community that your DDT production is beneficial to the environment.

Compose a commercial for a wildlife protection group that will convince citizens of a community that all uses of DDT should be discontinued.

Have the students act as reporters writing a special article on resource use in the neighborhood. The composite report can include narrative, photographs, drawings. Show the kinds of natural resources in the area, what kinds of commerce or industry use the raw resources and which ones are using refined or processed resources. Indicate what the manufacturer does with waste materials, by-products. Record any evidence of abuse of the environment and evidence of efforts to prevent pollution. Suggest ways citizens can influence those responsible for pollution to change.

Visit a supermarket.

Develop a study showing that it is possible to utilize natural resources to provide power for technology without polluting the air, water or soil.

Suppose a permanent dust bowl has developed. Tell what happened to the city of Chicago.

Visit a lumberyard.

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ACTIVITIES

Level 4 - Men interact to utilize the world's available resources.

In a study of international trade show how natural resources are transferred from one continent to another. Relate any environmental problems resulting.

Visit the Los Angeles Harbor.

Through community effort, children can set up standards for class resource use. Identify the resources, determine the status of supply, develop a plan for rationing scarce items, prepare a plan for increasing scarce items, plan reduction of items in oversupply, agree on which items should be decreased, which ones should be increased, which ones should be transferred or exchanged.

Visit a
wholesale
marketing
center.

Prepare a report telling the
historical development of laws
to control use of natural
resources. Indicate new laws
needed. Which laws should be
changed?

Visit a
world
trade
center.

Make a survey
of associations
involved with
the industry
of lumber and
wood products.

Relate interaction involved in producing petroleum products around the world. Are new policies needed?

As a member of a miner's labor union, defend strip mining.

As a defender of the land, argue the case against strip mining.

To decide where a freeway should go through the city, choose a panel that includes a school man, a homeowner, an industrialist, a descendant of an early California family, the Chief of Police, an environmental biologist, a commuter to another area.

What departments of the United States government are concerned with control of natural resource use? How are citizens involved in influencing action?

Report finds of an investigation concerning competition for use of natural resources as cause of war between nations. Indicate the results to the resources involved.

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SOCIAL SCIENCE

ACTIVITIES

SOCIAL SCIENCE

Level 5 - Social aims determine the utilization of resources.

You are in your city's downtown park. What do you think it looked like before any people settled there? Can you tell from vegetation left around your city what grew there? Can you guess what animals lived there? What do you think the builders of the park expected it to do for people? What good purposes does it serve. What harmful effects does it have? How would you change or improve the park to make it serve you and the community better?

Name the natural resource
of all the non-essential,
decorative items you are
wearing.

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What items of the natural
environment did primitive
man use for decoration?
For trade? What do present-
day men use? Prepare a re-
port comparing or contrast-
ing the effects on the en-
vironment.

You have arrived on an interplanet
spaceship from another planet. De-
velop a report explaining what you
find the inhabitants doing with what
and why you think they are doing it.
Try to show the relationship be-
tween use of resources and people's
wants.

Visit a sporting goods store and make a study of fashionable recreational pursuits. Analyze possible and probable damage and benefits to the natural environment resulting from the various activities.

Make a study of various trophies
given or acquired by men through
the ages as prizes for success
in conquest of the natural en-
vironment.

Write a history of gold
and silver and how they
became standard mediums
of exchange.

ACTIVITIES

SOCIAL SCIENCE

Level 6 - Men modify the environment in order to utilize their resources and increase them.

Environmental Study Trip

Travel through central industrial Los Angeles, down freeways, to the ocean, along the ocean an back through residential areas, including foothill areas, quarries, oil wells, refineries, waste disposal plants, marinas, harbors, hillside development, beach development, an airport. Make lists, structure discussion, develop reports that include recommendations for reducing air pollution, water pollution, soil pollution, noise pollution, visual pollution. Identify technological causes for deterioration and pollution. suggest possible changes to reverse the damage to the environment. Identify results of overpopulation. suggest remedies. Identify responsibility for noise pollution, for visual pollution and recommend action to correct the harmful effects. Write and illustrate a report using drawings or photograph.

Plan an ideal city of 250,000.

Visit a waste disposal plant in Southern California.

Prepare a study showing how the water is obtained for the Southern California area, including modifications to rivers involved, building of dams, transportation to the area.

Write and deliver a speech attacking commercial development of seacoast land.

Develop a historical report of the development of irrigation farming in Southern California.

Describe the various effects oil production has on the area.

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ACTIVITIES

HUMANITIES

Level 1 - Men interact mentally and emotionally to the objects and events in their environment.

Draw a picture of a street showing all the things in it that make you feel happy. Then make a picture of the same street showing only the things that look ugly and polluting to you, making them very big so everyone will notice. Draw the street as it would be if you could make it the most beautiful street in the whole world.

Pick out something in the air, earth, water

around you that excites you and imagine you have turned into that thing. Write a poem about what it's like. Don't use rhyme.

Visit Descanso Gardens.

Describe feelings experienced in your environment -- color, rain, sunshine, clouds, thunder, airplane sounds, sirens, ocean, grass, sand, mud, dust, insects, snakes, birds, deer, bear, tree, house, skyscraper, anthill, butterfly, smog, fog, smoke, fire, sky, ground, air, gutter.

Go outside and map or draw something you cannot see -- smell, taste, sound, fear, attraction, etc.

Tell about your favorite place, one that you visit whenever you can. Why do you like it? If you could change it, would you? How? Why?

On a map of your neighborhood, show the places where you feel comfortable and the places you feel uncomfortable.

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ACTIVITIES

HUMANITIES

Level 2 - Men seek out objects, events, and behaviors symbolic of beauty.

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Have the class make an inspection tour of the playgrounds and buildings of the school and develop a report assessing the aesthetic value of the area and of the various symbols of beauty found in the design and decoration. What do the pupils like? What do they want to change? (Is change economically possible? Legal? Allowable according to rules for the schoolgrounds and buildings?) How can other children be influenced to become aware of all the unique beauty of the environment? How can other children and adults be involved in protecting and preserving the beauty of the area? What will happen if none of us or anyone else cares what happens to the immediate environment? What will it look like?

Make a collage of
leaf prints.

Have the pupils put on a mounting - cardboard,
wood, paper, cloth - some one thing they think
is beautiful.

Arrange photographs selected by members of the class as beautiful according to groupings. Groups may be arranged by individuals or through group choice. (Collect a large number of pictures from magazines, postcards or library.)

Arrange an art exhibit showing scenes or things
in the natural environment portrayed by famous
artists.

Find and bring in and ask students to bring to class things in the natural environment that can be used to produce unusual sounds. Experiment in producing sounds - analyze the aesthetic value, whether it is musical or noise. If possible, go outside and search for natural materials that will make musical instruments. Organize an orchestra of various instruments created. Find out from reading what materials were used to make the first musical instruments. Make some of these and add them to the orchestra.

ACTIVITIES

HUMANITIES

Level 3 - Men, responding to special environments, create objects and events symbolic of their interaction.

Describe responses of the artist
of a picture that inspired the
creation.

Sing songs relating responses to en-
vironmental events. It could be a med-
ley game in which a singer starts a
new song about something in the song
being sung.

Create a seed mosaic. Most plants have seeds, flowers in the gardens, trees, bushes, weeds. Use a linoleum block or a smooth piece of wood or a sheet of plastic. Have seeds gathered, dried, and in separate containers. Draw an outline or sketch of the mosaic and paint a small section with epoxy glue. Quickly place the seeds in the glue. Work in small spaces at a time because the glue dries quickly. If you see changes you want to make in your design as you go, working in small spaces will allow you to make the change. A coat of acrylic spray or a coat of shellac will add permanence to the mosaic and sharpen the colors. Small stones, shells, acorns, bits of bark, or feathers collected may be used to create "pictures".

Develop a story telling meanings
attached to feathers in an Indian
Chieftan's headdress.

Listen to "Grand Canyon
Suite". Describe the com-
poser's symbolic creation
- your responses.

Visit the Los Angeles County Museum
of Art.

Using seed pods, maple wings, twigs, peb-
bles, evergreen needles, Queen Anne's
lace, arrange a collage picture. Try a
double layer using different colors and
different patterns.

Read poems from collections of American poets that were inspired by things
and events in their natural environment.

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ACTIVITIES

HUMANITIES

Level 4 - Cultures are characterized by their special ways of reacting to the environment.

Examine the Japanese feeling about occurrences in nature expressed in Haiku and Sumi. Read selected Haiku. Try to write original Haiku.

Discuss Navajo sand painting and its cultural implications.

Read literature reflecting the attitudes of the American Indians to their natural environment.

Examine pictures of rock paintings in Baja California and try to find out what minerals were used to make the colors that have remained bright through the centuries.

Relate rain dances, fertility festivals, hunting celebrations, pleas for safety of primitive peoples to their reactions to the natural environment.

Research the background, create an appropriate setting, and act out a ceremony held to express a particular cultural reaction to the environment.

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ACTIVITIES

Level 5 - Men create objects, events, and behaviors which satisfy their images of beauty or order.

HUMANITIES

On a walk around the block or around the neighborhood, photograph scenes which reflect beauty -- landscape, a flower, a garden, a building, a skyline, a street light, a flock of birds -- then draw, paint, sculpt to describe personal interpretation of the scene or thing. Compose a song, write a poem or essay.

Make a movie depicting an event or behavior observed in your environment that you see as beautiful.

Compare music and noise.

Listen to classical music selections intended by the composers to express personal interpretation of environmental sounds.

Visit Huntington Library.

Visit Los Angeles Civic Center.

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ACTIVITIES

HUMANITIES

Level 6 - Men recreate the environment.

Try to make a whole new environment using your classroom -- rain in the backyard, sunrise in the forest, the beach at sunset, the school in its landscape. The teacher can help think of ways to make sounds, create colors, create backdrops.

Build a model of the ideal city.

Take a bus trip through an industrial area and photograph scenes and details to illustrate ways men have recreated the environment that are ugly and vision polluting, disturbing to the physical and emotional health of people and other living things. Develop a report recommending corrective measures to provide a sanative environment.

Build a sun, a wind machine, a wave machine, a fountain.

Construct a model of an underground environment for man.

Plant a garden of plastic flowers.

Make a tape recording of sounds heard on a busy thoroughfare.

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89/92

RESOURCES

Before the lists of suggested resource materials are published and distributed, there will be many new items available that will seem to make the information incomplete. We have listed books printed since 1971. There are many comprehensive bibliographies available to suggest books suitable for various facets of ekistics education published in prior years. To keep abreast of new books requires continual watchfulness or the use of a reviewing service such as the Library Journal, Book Review Digest, or a book reviewing committee in the education unit.

The list of films includes ekistics-related films available in the film library of the Office of the Los Angeles County Superintendent of Schools and some films issued during the past two years that may be valuable instructional media for ekistics education. The April and November issues of the School Library Journal have offered very comprehensive lists of films, filmstrips, slides, kits, etc., from which selections for preview may be made. Many producers will cooperate with workshop chairmen by providing materials for exhibit.

Plans to develop a complete resource reference center for ekistics education are in an implementation stage. When the task is successfully completed, assistance in locating or acquiring resource personnel or materials for ekistics education should be available from the Office of the Los Angeles County Superintendent of Schools, Consultant in Environmental Education.

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RECOMMENDED CONTENTS FOR A KIT OF TEACHER MATERIALS FOR ENVIRONMENTAL EDUCATION

Brandwein, Paul F.

EXISTICS - A HANDBOOK FOR CURRICULUM DEVELOPMENT FOR CONSERVATION AND ENVIRONMENTAL EDUCATION
California Department of Education, 721 Capitol Mall, Sacramento, CA 95814

Brennan, Matthew J. (editor)

PEOPLE AND THEIR ENVIRONMENT (series)

J. G. Ferguson Publishing Co., 158 Magnolia Street, San Francisco, CA 94123

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Each volume \$ 3.95

Committee on Outdoor Science Education

SCIENCE INSTRUCTION THROUGH EFFECTIVE USE OF THE OUTDOOR ENVIRONMENT (out of print when supply gone)
Association for Environmental and Outdoor Education, 621 South Virgil, Los Angeles, CA 90005

1.25

CONSERVATION SCIENCE FAIR PROJECTS

Soil Conservation Society of America, 7515 N. E. Ankeny Road, Ankeny IA 50021

1970

32p.

1.00

Ehlen, William R.

TOTAL EDUCATION IN THE TOTAL ENVIRONMENT
TETE, P. O. Box 113, Wilton, CT 06897

1971

38p.

ENVIRONMENTAL STUDIES

Essence (Pack 1 and Pack 2)

American Geological Institute, Box 1559, Boulder, CO 80302

1970

5.00 each

EVALUATED BIBLIOGRAPHY OF FREE AND INEXPENSIVE CONSERVATION PUBLICATIONS
California State Department of Education, 721 Capitol Mall, Sacramento, CA 95814

1969

136p.

GUIDE TO CONSERVATION EDUCATION FILMS, FILMSTRIPS, AND PICTURE SETS
California State Department of Education, 721 Capitol Mall, Sacramento, CA 95814

1971

85p.

A GUIDE TO PLANNING AND CONDUCTING ENVIRONMENTAL STUDY AREA WORKSHOPS
National Education Association, 1201 Sixteenth Street, Washington, DC 20036

1972

51p.

2.25

HANDBOOK ON CALIFORNIA'S NATURAL RESOURCES (Volume I and Volume II)

Resources Agency of California, Office of Conservation Education, 1416 Ninth Street, Sacramento, CA 95814

Los Angeles County Regional Planning Commission
ENVIRONMENTAL DEVELOPMENT GUIDE

Regional Planning Commission, County of Los Angeles, 320 West Temple Street, Los Angeles, CA 90012

1971

77p.

Marsh, Norman F.

OUTDOOR EDUCATION ON YOUR SCHOOL GROUNDS: AN ACTION APPROACH TO BETTER TEACHING
The Resources Agency, Office of Conservation Education, 1416 Ninth Street, Sacramento, CA 95814

McInnis, Noel

YOU ARE AN ENVIRONMENT

Center for Curriculum Design, P. O. Box 350, Evanston, IL 60204

1972

96p.

\$ 2.00

National Education Association and National Park Service
ENVIRONMENTAL EDUCATION/FACILITY RESOURCES

Educational Facilities Laboratories, 477 Madison Avenue, CA 10022

1972

63p.

2.00

National Education Association and American Association for Health, Physical Education and Recreation
MAN AND HIS ENVIRONMENT: AN INTRODUCTION TO USING ENVIRONMENTAL STUDY AREAS
National Education Association

1970

56p.

1.75

NEED - National Environmental Education Development
ADVENTURE IN ENVIRONMENT
Silver Burdett Company

1971

4 booklets -
packet

Orange County Planning Commission

THE PHYSICAL ENVIRONMENT OF ORANGE COUNTY -

A Report on the Deteriorating Condition of Orange County's Natural Environment

1971

147p.

U. S. Department of Agriculture, Forest Service - California Region
INVESTIGATING YOUR ENVIRONMENT

U. S. Forest Service, 630 Sansome Street, San Francisco, CA 94111

1972

U. S. Department of Agriculture, Soil Conservation Service
CREATIVE LEARNING EXPERIENCES IN CONSERVATION

U. S. Government Printing Office

1970

unpaged

U. S. Department of Agriculture, Soil Conservation Service
OUTDOOR CLASSROOMS ON SCHOOL SITES

U. S. Government Printing Office

1972

22p.

.25

U. S. Department of Agriculture, Soil Conservation Service
AN OUTLINE FOR TEACHING CONSERVATION IN ELEMENTARY SCHOOLS

U. S. Government Printing Office

Revised 1971

14p.

U. S. Department of Agriculture, Soil Conservation Service
TEACHING SOIL AND WATER CONSERVATION, A CLASSROOM AND FIELD GUIDE
U. S. Government Printing Office (PA 341)

Revised 1970

30p.

U. S. Department of Agriculture, Soil Conservation Service
 YOUR KEY TO ENVIRONMENTAL QUALITY -- CONSERVATION FACTS
 State Conservationist, Soil Conservation Service -- Room 203
 2020 Milvia Street, Berkeley, Ca. 94704

U. S. Department of the Interior, National Park Service
 NATIONAL ENVIRONMENTAL STUDY AREAS: A GUIDE

U. S. Government Printing Office

U. S. Office of Education, Division of Vocational and Technical Education
 CAREER EDUCATION IN THE ENVIRONMENT -- A HANDBOOK
 U. S. Government Printing Office

1972	57p.	\$.75
1971	total, 4 parts 379p.	2.00

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RESOURCES

Books -- Juvenile

HUMANITIES

Concept
Level

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- | | | | | | |
|---|--|------|-------|------|--------|
| 4 | Alden, Carella. <u>Sunrise Island: A Story of Japan and Its Arts</u>
Parents Magazine
Introduction to Japanese art and history. Well-chosen illustrations. | 1971 | 64p. | 3-6 | \$4.80 |
| 2 | Bond, Jean Carey. <u>Brown Is A Beautiful Color</u>
Watts | 1969 | 39p. | K-3 | \$3.95 |
| 3 | Cutler, Katherine N. <u>From Petals to Pinecones</u>
Lothrop | 1971 | | | \$1.75 |
| 2 | Davis Bette J. <u>Musical Insects</u>
Lothrop | 1971 | | | \$3.95 |
| 2 | Guyler, Vivian Varney. <u>Design in Nature</u>
Davis | 1971 | 128p. | | \$9.95 |
| 1 | Hoban, Tana. <u>Look Again</u>
Macmillan | 1971 | | K-3 | \$4.95 |
| 5 | Froman, Robert. <u>Street Poems</u>
McCall | 1971 | 58p. | 3-6 | \$4.50 |
| 4 | Jones, Hettie. <u>The Trees Stand Shining: Poetry of the North American Indian</u>
Dial | 1971 | | 4 up | \$4.95 |
- These are picture poems about pollution and traffic and loneliness; there are ones about skyscrapers and builders and fire hydrants, even one about a garbage truck.
- A celebration of the world and all its elements through Indian eyes. The paintings themselves seem of earth, air, fire, and water and are in harmony with the terse eloquence of the songs.

RESOURCES

Books - Juvenile

HUMANITIES

Concept
Level

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- 2 Lund, Doris Herold. The Paintbox Sea
McGraw-Hill 1972 \$4.95
Shows in full-color photographs a brother and sister following the many moods of the ocean and how they come to know it as a living thing.
- 5 Mizumura, Kazuo. If I Built A Village
Crowell 1971 K-3 \$4.50
Three ideal communities -- a village, a town, and a city -- are described. Alternating black-and-white wash with watercolor illustrations contrast geometric forms of a man-made city with graceful forms of rounded, burrowing moles, rabbits with slightly rounded backs, etc.
- 2 Scheffer, Victor B. The Seeing Eye
Scribners 1971 48p. 7 up \$5.95
Attempts to instill in readers an appreciation for and awareness of the complexity of patterns in nature and the beauty of the natural world. The many beautiful color photographs make the book really something to see.
- 1 Tannenbaum, Beulah and Myra Stillman. Understanding Sound
McGraw-Hill 1971 7 up \$4.75
What is sound? How do you hear it? What does it do to you?
- 3 Atwood, Ann
HAIKU: THE MOOD OF EARTH
Scribner 1971 4 up \$5.95
Twenty-five haiku illustrated by full-color photographs. Explains haiku and relates verbal expression in the poems to emotional reaction and visual impression recorded in the photographs.
- 3 Brandon, William
THE MAGIC WORLD: AMERICAN INDIAN SONGS AND POEMS
Morrow 1971 \$2.50

The Indian's understanding of the connection between themselves and Mother Earth and Father Sky comes through in this collection.

RESOURCES

Books - Juvenile

HUMANITIES

Concept
level

3

Rieger, Shay
ANIMALS IN WOOD
Scribner

1971

3 up

\$ 4.95

Describes how animal sculptures are created from wood, beginning with photographs of real animals and showing the finished sculpture. The text is simple and the photographs are effective in creating appreciation for art.

4

Rockwell, Anne
PAINTBRUSH AND PERCEPIPE: THE STORY OF GEORGE CATLIN
Atheneum

1971

4-6

87 p.

\$ 5.25

Biography of artist who traveled through the West painting Indian portraits and collecting beautiful things Indians made.

5

Tomaino, Sarah F.
PERSEPHONE: BRINGER OF SPRING
Crowell

1971

1-3

\$ 4.50

Tells the Greek myth about the coming of winter and the return of springtime to the land. Illustrated with paintings that convey the Greek countryside and the gloom of Hades' kingdom.

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RESOURCES

Books - Adult

HUMANITIES

Concept
Level

- 1 Ammons, A.R. Briefings: Poems Small and Easy
Norton 1971 \$1.95 paper, \$6.00
Each poem defines the poet's appreciation of a facet of man and his place in nature in observation at once individual and all encompassing.
- 3 Anderson, Charles R. Thoreau's World: Miniatures from His Journal
Prentice-Hall 1971 370p. \$10.00
About 250 excerpts from Thoreau's Journal offer the newcomer a pleasant introduction to the writings of Thoreau.
- 2 Animals In Art and Thought To The End Of The Middle Ages
Mit 1971 80p. \$8.25
Tells how, at all periods, animals have been used by man in art and literature to symbolize his religious, social, and political beliefs; and artists have found constant inspiration in the grace and beauty of animal forms.
- 3 Arnheim, Rudolph. Entropy and Art: An Essay on Disorder and Order
University of California Press 1971 64p. \$4.50
Attempts to reconcile the contradiction between the striving for order in nature and in man and between the tendency toward greater organization and the general trend of the material universe toward death and disorder.
- 2 The Beautiful Land: America in Pictures
Scribner 1971 159p. \$9.95
At least one captioned picture for each state present generally tranquil and interestingly variegated scenes.
- 4 Behn, Harry. More Cricket Songs: Japanese Haiku
Harcourt 1971 64p. \$3.50
Illustrated with pictures by Japanese masters photographed from books in the New York and Boston Public Libraries, the small book contains over eighty haiku from twenty-nine Japanese poets.
- 2 Berleant, Arnold. The Aesthetic Field
Thomas 1971 199p. \$8.75
Attempts to catch up conceptually with recent developments in the practice of the arts, including the new arts of involvement, found art, happenings, etc. The author argues for the primacy of perception over cognition in aesthetic experience - denying any practical distinction between the fine and useful arts.

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RESOURCES

Books - Adult

HUMANITIES

Concept
level

- 1-6 Bishop, Jonathan. Something Else 1971 284p. \$2.45 paper, \$7.95
Braziller
Writings grouped into five themes: the end of thought, the beginning of life, imagination, encounter, and creation.
- 4 Brandon, William (editor). The Magic World: American Indian Songs and Poems 1971 145p. \$2.50 paper
Morrow
The Indian's understanding of the connection between themselves and Mother Earth and Father Sky comes through in this collection.
- 5 Brigham, Besmilt. Heaved From the Earth 1971 75p. \$4.95
Knopf
Each creature, flower, and tree is seen as an individual species unique in nature whose nuances Brigham has profiled with knowing appreciation in poems of striking imagery written with a schooled yet free and personal style.
- 6 Browning, David. El Salvador: Landscape and Society 1971 329p. \$17.75
Oxford
A study of El Salvador dealing with the changing pattern of land-tenure and use from pre-Columbian era to the present.
- 1-6 Deinhard, Hann. Meaning and Expression: Toward A Sociology of Art 1971 120p. \$8.50
Beacon Press
Analyzes the connection between two conceptions of art: 1) every great work is timeless and 2) every work is an expression of its time.
- 5 Eisenstaedt, Alfred. Witness to Nature 1971 126p. \$12.50
Studio-Viking
Noted photographer-journalist selected 118 pictures of animals, flowers, seascapes, cloud formations, forest, and nature scenes from around the world. Notes emphasize subjectivity of pictorial judgment and response to variables essential to achieve striking and diverse effects.

FILE
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HUMANITIES

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RESOURCES

Books - Adult

HUMANITIES

Concept
Level

- 3 Savage, Ernest. Painting Landscapes in Pastel 1971 176p. \$12.50
Watson-Gipsill
A complete guide to painting landscapes in pastel, taking the reader through specific stages from sketch to finished picture.
- 3 Stephens, Alan Archer. Tree Meditation and Others 1971 53p. \$5.00
Swallow
All the poems are about landscape, Eastern and Western, the long poem "The Heat Lighting" is impressive in its separate sections, all evoking the relationship of man to the earth.
- 3 Stern, Philip Van Doren (editor). The Annotated Walden 1971 \$10.95
Potter
Explanatory introduction to Thoreau's writing is filled with tidbits of information.

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RESOURCES

16 MM Film

HUMANITIES

Concept Title Level Dist.	Grade level	Year Released	Length	Color	Cost Rent	Cost Purchase
1 BY THE SEA Barr	K-3	1971	14 minutes	color		\$165
A film to motivate creative expression and for the study of film as an art form. Presents a variety of visual impressions of the seashore: people by the sea, changing moods of the sea; and plant and animal forms found beneath the surface and along the shoreline. Based on a book by Berte Amoss published by Parents Magazine Press.						
i-2 COLORS ARE USEFUL BFA		1961	11 minutes	color		(Cat.#4580)
Presents many illustrations showing the effect of color in nature and the various ways man uses color.						
1 A DAY AT THE BEACH ACI	K-6	1971	12 minutes	color		\$160
Shows small boy spending a day alone at the beach, No narration. Useful as a visual experience, an introduction to beach ecology, and to stimulate discussion.						
1 FOG EBEC	all	1971	9 minutes	color		\$102.50
Music ebbs and flows with fog's movement in this non-narrated film inspired by Carl Sandburg's poem.						
1 I LIKE DESERTS / I LIKE CLOUDS / I LIKE FLOWERS AIMS	Pres-3	1971	(3) 7-9 minutes	color	\$15 ea.	\$110-130
Uses verse narration to present basic conservation and natural resources topics.						
1 I LIKE TREES / I LIKE WATER AIMS	Pres-3	1970	(2) 8&9 minutes	color		\$110-120
Featuring delightful verse narration, films combine basic instructional concepts with motivational challenge.						
1 NOISES IN THE NIGHT BFA	K-6	1970	9 minutes	color		(Cat.#6040)
Presents the story of Sherri who feared noises she heard in the dark and her parents who try to help her understand that night noises are made by familiar things.						

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RESOURCES

16 MM Film

HUMANITIES

BEST COPY AVAILABLE

Concept Title level Dist.	Grade level	Year Released	Length	Color	Cost Rent	Cost Purchase
2 SEASHORE Pyramid	K up	1971	8 minutes	color	\$10	\$125
Presents the beauties of the ocean and its wildlife and implies that wildlife and shores may be destroyed unless we learn to subdue ourselves rather than our environment.						
1 SHEEP, SHEEP, SHEEP Churchill	K-6 & adult	1971	11 minutes	color		(Cat.#4368)
Illustrates the moods, rhythms, and images of sheep through natural sounds without commentary. Shows sheep gazing, eating, sleeping, walking, and moving to the highlands.						
2 SNOW BFA	K-6		9 minutes	color		(Cat.#6034)
Introduces the young student to a variety of observations about snow. How a snowflake is formed and how it affects plant and animal life.						
2 STUDY IN WET Groening	7-9		7 minutes	color		(Cat.#4212)
Uses water as a disciplined instrument to create a musical event and relates it to spectacular film scenes.						
1 TAKE TIME TO SEE Barr	7-up		11 minutes	color	\$6.00	\$135
A film to stimulate environmental awareness. Contrasts the troubled thoughts of a freeway driver caught up in the fast world of concrete and steel with the joy and serenity of nature. The viewer joins a group bicycling through a city park, through the fall color of mid-America. Enjoying a family outing as they bicycle along a rural byway to find the magic of nature's world.						
3 TAPA MAKING Barr	7-9	1958	15 minutes	color		(Cat.#1138)
Demonstrates the process of making and decorating bark materials in Samoa as it has been done since primitive times. Shows a modern adaptation of this art.						
4 TOTEMS	4-9	1944	11 minutes	color		(Cat.#5556)
Shows the enormous cedar totems with the ritualistic and religious carvings made by the West Coast Indians of British Columbia.						

RESOURCES

16 MM Film

HUMANITIES

Concept Title level Dist.	Grade level	Year Released	Length	Color	Cost Rent	Cost Purchase
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6 THE TREEHOUSE

King Productions	4-9	1971	9 minutes	color		(Cat.#4467)
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A story about a young boy and his tree which poses the question of whether or not man can live in the world without obliterating its beauty.

BEST COPY AVAILABLE

3 THE PARK

Communico		1970	7 minutes	color		\$90
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Lively mood music, narration which includes selections from Thoreau's Walden and beautiful color photography portray a park as it blends from one season into the next, highlighting various people as they enjoy the beauty and adventure of the park's various seasons.

1 RAIN IN THE CITY

IFB	7-up	1971	14 minutes	b&w	\$9	\$95
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The activities of a city as a gentle rainstorm comes and goes. The film without narration, shifts to wooded area, to the sound of bells and to a solitary walker.

4 ROCK PAINTINGS OF BAJA CALIFORNIA

Bailey	7-9	1969	25 minutes	color		(Cat.#71193)
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Features spectacular rock paintings photographed in the Sierra de San Borjas, the central mountains of Baja California. Describes the paintings which are colored with local minerals as the work of primitive people who lived in the area 600 years ago.

2 TREES

Grove	7-12	1971	15 minutes	color	\$35	\$175
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A visual statement of nature's beauty that is a plea for the appreciation and protection of nature.

2 TEXTURES

ACI	4 up	1971	10 minutes	color		\$130
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Shows the factors which determine a person's impression of texture; point of view, direction, direction and quality of light, and function.

1-2-3 THE VISUAL ARTS

McGraw-Hill	9 up	1971	18 minutes	color	\$24	\$265
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Illustrates various functions of art - to express and allay man's fears, as an expression of religious worship, to celebrate life, to decry war and suffering as well as to express man's personal vision of the world.

RESOURCES

16 MM Film

HUMANITIES

Concept Title level Dist.	Grade level	Year Released	Length	Color	Cost Rent	Cost Purchase
2 WATER Grove	7-12	1968	16 minutes	color	\$35	\$175
Evokes our wonder at the beauty of our most precious yet most threatened resource.						
1-2-3 WHAT IS MUSIC Churchill	4-9	1968	16 minutes	color		(Cat.#1593)
Presents the great range of sound we call music beginning and ending with a stream and its accidental sounds. Includes music from percussion and blues to ancient Chinese and aboriginal music along with classical renaissance and contemporary electronic pieces.						
3 WIND SOUNDS Churchill	4-9	1968	16 minutes	color		(Cat.#3051)
Uses such familiar examples as whistling, blowing past a blade of grass, and blowing over the tops of pop bottles to show some of the basic principles of wind sound production.						
6 ALL THE DIFFERENCE Eastman Kodak	7-12	1970	21 minutes	color		(Cat.#1647)
Contrasts the harsh realities of today's urban blight with the serene beauty of America's natural wonderlands. Presents a powerful statement on the country's pollution crisis emphasizing how the quality of the American environment is deteriorating and what it can become in just a few years. Much of the narration is made up of questions from poets such as Frost, Sandburg, and Thoreau.						
4 HAIKU Stanton	4-9		14 minutes	color		(Cat.#1252)
Presents a number of haiku, traditional Japanese seventeen syllable rhymes. Expresses the respect for nature and inner serenity and the link between poetry, literature, and art which is characteristic of the Japanese culture.						

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RESOURCES

8 MM Filmloops

HUMANITIES

Concept
level

1-6 CREATIVE MOTIVATION

Thorne 4 loops with notes

1970

color

\$24 each

Good photography captures the patterns, shapes, colors, contrasts and atmosphere of mediaval art and architecture, the natural and man-made formations on the earth's surface, and the vibrant decaying and peaceful qualities in nature.

Titles: Medieval Mood, Moods From Nature: Tranquillity, Moods from Nature: Hope and Dispar, Tapestry of the Earth

1-2 VISUAL STIMULUS

Hester 2 loops, 4 minutes each

1971

color

\$22.50 each

Designed to evoke aesthetic responses to visual stimulation provided by unique displays of shape, color, design, and motion.

2 DESIGN IN OUR ENVIRONMENT

Hester 5 filmloops, 4 minutes each

1971

color

\$22.50 each

Visual exploration of traditional design elements: color, line, texture, and form as the exist in the man-made and natural environment.

6 BOX ENVIRONMENT

BFA 1 loop

1971

color

\$20

Demonstrates how to change an individual's relationship to the space around him and thus his perception by having him build an object with himself as the center.

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RESOURCES

Filmstrips

HUMANITIES

Concept
level

BEST COPY AVAILABLE

- 1-2 ALONG SANDY TRAILS
Viking Press 1 strip with phonodisc and guide 2-5 color 1971 \$9.50
As a little Papago Indian girl walks with her grandmother through the desert, the child describes the animals and flowers she sees.
- 1 DISCOVERING YOUR SENSES
Coronet 6 sound filmstrips 1-4 1971 discs \$55
cass \$70
Aimed at increasing a child's awareness of his senses and curiosity about his environment.
- 1-2 DISCOVERY ONE: HAVE YOU EVER?
Prothmann 1 loop silent K-6 color 1971
Shows the child's environment as a source for discovery of art experiences. Based on teaching experiences at the University of Montana.
- 1-2 DESIGN IS A DANDELION
BFA 6 sound filmstrips 4 up 1970 \$53.00
Natural phenomena such as trees, sunsets, the sea, animals, and even a dandelion illustrate texture, color, form, balance, and contrast in designs. Closeup photography provides a view of the natural world of design which the child rarely sees.
- 1 MY SENSES AND ME
EBEC 4 sound filmstrips Pres-3 1971 disc \$46.80
cass \$53.80
What Do I Do When I Look / What Do I Hear When I Listen / What Do I Feel When I Touch / What Do I Smell and Taste? Explore role senses play in perceiving the environment and develops descriptive vocabulary.
- 2 SYMPHONOLGY
Cameron McKay 6 sound filmstrips 1-6 1971 disc \$59.00
cass \$69.00
Frog Pond Symohony, Sniffy the Snake, Cookoo Kangaroo, Slimfellow Bogg, Haggity Witch, Colors of the Sky. Original music and stories combined to acquaint listener with musical instruments heard in symphony orchestra.
- 2 UNDERSTANDING NATURE LIBRARY
Weston Woods 8 filmstrips, 8 text booklets K-4 1971 disc \$72.50
cass \$99.50
A Tree Is Nice, Rain Drop Splash, The Little Island, The Happy Day, The Big Snow, Where Does the Butterfly Go When It Rains, Sun Up, Wheel on the Chimney, Time of Wonder Based on books published.

RESOURCES

Filmstrips

HUMANITIES

Concept
level

3-4-5 HAIKU: THE MOOD OF THE EARTH

Lyceum 2 sound filmstrips

7-14

1971

cass \$36.00

The first strip illustrates the elements of haiku with its implied comparison between objects in nature through examples of the three-line Japanese verse, outstanding photographs, and a lyrical, somewhat mystical narration. The second strip creates the atmosphere of haiku using paired photographs, one of which magnifies or isolates the essence of each spoken poem.

3 THE JOURNAL OF HENRY DAVID THOREAU: THE SEASONS

IFC 2 filmstrips

disc \$27.00
cass \$29.90

Includes Thoreau's Spring; Thoreau's Summer -- selected passages accompanies by photographs.

1-6 LOOKING AT THINGS

Prothmann 8 silent filmstrips

4 up

color 1971

\$65.00

1 THE LANGUAGE OF COLOR

McIntyre 6 silent filmstrips

adult

color 1971

\$ 7.00

Aimed at providing visual stimulus rather than explanation of the scientific aspects of color. Photographs arranged under several topics have no captions but are keyed frequently extensive explanatory notes accompanying the set. Close-up and panorama shots of objects and scenes in nature examine the effect of light on color and the intermingling of separate colors while photographs of paintings and other artistic expressions from various periods of history reveal the artist's interpretation of color. Each guide contains suggestions for additional classroom activities.

BEST COPY AVAILABLE

RESOURCES

Books - Juvenile

SOCIAL SCIENCES

Concept Level

- | | | | | | |
|---|---|------|-------|-------|--------|
| 1 | Bloome, Enid
<u>The Water We Drink</u>
Doubleday | 1971 | 48p. | 5-8 | \$4.95 |
| | Focuses on water, noting its importance to life, briefly describing some of the ways in which water becomes polluted and giving some simple suggestions on things that concerned adult and children can do to help combat water pollution. | | | | |
| 6 | Dodd, Edward
<u>Careers for the '70's: Conservation</u>
Crowell-Collier | 1971 | 181p. | 7 up | \$.95 |
| | Discusses different types of work in forest, soil, fish, and wildlife conservation in the United States and Canada and in the National Park Service. Also covers careers for writers, photographers, and artists. Earnings and fringe benefits for federal employees in conservation, job opportunities for women and minorities and summer jobs giving addresses where applications may be made. | | | | |
| 3 | Duffey, Eric
<u>Conservation of Nature</u>
McGraw | 1971 | 128p. | 10 up | \$4.95 |
| | Following a brief discussion of man as the dominant species, Duffey covers seven major ecological concerns: intensive agriculture, the increasing need for water, technology, population, wildlife conservation, pollution, and aesthetic aspects of conservation. | | | | |
| 3 | Earle, Olive L.
<u>Peas, Beans, and Licorice</u>
Morrow | 1971 | 64p. | 4-6 | \$3.50 |
| | Covers thirty legumes, all described clearly from scientific and other angles. | | | | |
| 4 | Elliott, Sarah
<u>Our Dirty Air</u>
Messner | 1971 | 64p. | 3-5 | \$3.95 |
| | Discusses the causes of air pollution, its affect on people, plants, and animals and what can be done about it. Emphasizes the need for government action at all levels to insure cleaner air and gives suggestions for individual action through formation of a club. | | | | |

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RESOURCES

Books - Juvenile

SOCIAL SCIENCES

Concept
Level

3 Fenton, Carroll Lane and Hermine B. Kitchen
Plants We Live On: The Story of Grains and Vegetables

John Day 1971

128p.

4-6

\$4.95

This revision of Plants That Feed Us discusses specific plants in detail, gives historic background, and describes prospects for hybridization-improved plants and the alleviation of hunger in the future.

3 Floethe, Louise Lee

Farming Around the World
Scribner

1971

2-4

A brief but informative travel guide to the world of farming, accompanied by bright, interesting pictures. Not all countries describes farming around the world. Concise summary of why all farms do not produce the same amount of food.

5 George, Jean Craighead

Who Really Killed Cock Robin? An Ecological Mystery
Dutton

1971

149p.

4-8

\$4.95

Ecology-minded Saddleboro Cock Robin is found dead on the mayor's lawn, apparently victim of an unknown imbalance in the area's "Clean" environment. Tony Isidoro relentlessly and scientifically pursues investigation to track down the killer. This mystery will give readers an understanding of the complexity of ecology and the effects of modern living on the total environment.

4 Hirsch, S. Carl

Guardians of Tomorrow: Pioneers in Ecology
Viking

1971

192p.

6-9

\$4.95

Biographical information on seven and one woman ecologist present a history of the conservation movement. Included are Thoreau, Marsh, Olmstead, Muir, Pinchot, Norris, Leopold, and Carson. The book concludes with challenge to future guardians of the environment.

1 Jacobs, Lou

The Shapes of Our Land
Putnam

1971

128p.

\$3.86

Striking landforms of the United States are presented in black and white photos. Geographical and historical developments are discussed.

RESOURCES

Books - Juvenile

SOCIAL SCIENCES

Concept
Level

BEST COPY AVAILABLE

- | | | | | | |
|---|---|------|-------|------|--------|
| 3 | Halacy, Daniel Stephen
<u>Feast and Famine (The Nature of Man Series)</u>
<u>Macrae</u> | 1971 | 161p. | 7 up | \$4.95 |
| | Concerns food. Discusses need for food, the food chain, the conversion of food and energy, basic foods, and the importance of man's learning to farm. Presents problems of pollution and overpopulation. Mentions some new scientific discoveries expected to help meet the food shortages of the future. | | | | |
| 2 | Hogben, Lancelot Thomas
<u>Beginnings and Blunders: Or Before Science Began</u>
<u>Grossett</u> | 1971 | 110p. | 7-9 | \$4.99 |
| | Describes the physical characteristics of prehistoric man and the ways in which early man coped with his environment, including his methods of fishing and hunting, his use of fire, and his shelter, clothing, tools, art, crafts, and domestication of plants and animals. | | | | |
| 2 | Hopkins, Lee Bennett (editor)
<u>The City Spreads Its Wings</u>
<u>Watts</u> | 1970 | 46p. | K-3 | \$4.95 |
| | Contains twenty-one short poems about a city day from morning to evening. Tall buildings, bridges, park benches, giraffes at the zoo, and people and noise. Included are poems by Langston Hughes, Carl Sandburg and Myra Cohn Livingston. | | | | |
| 2 | Levenson, Dorothy
<u>Homesteaders and Indians</u>
<u>Watts</u> | 1971 | 90p. | 4-6 | \$3.75 |
| | Tells about the cattlemen, braves, and chiefs, black settlers and white, and the new breed of women on the frontier. | | | | |
| 6 | Lowenherz, Robert J
<u>Population</u>
<u>Creative Education Press</u> | 1970 | 120p. | 7-12 | \$5.95 |
| | Explores in understandable terms many of the complex problems connected with population growth -- growth rates, density, food production, ecological dangers, and population control. | | | | |

RESOURCES

Books - Juvenile

SOCIAL SCIENCES

Concept
Level

BEST COPY AVAILABLE

- | | | |
|---|---|--------------------------|
| 4 | McLeod, Sterling and others
<u>How Will We Move All The People? Transportation for Tomorrow's World</u>
Messmer | 1971 176p.
6-9 \$4.50 |
| Points out needs for new methods of transportation, experimental forms of transportation, and possibilities for the future. | | |
| 5 | Maher, John E. and Stowell Symmes
<u>Ideas About Choosing</u>
Watts | 1969 48p.
K-3 \$3.50 |
| Describes how citizens of today's world must learn to make choices in order to get the most out of living. Explains that, when you decide to do something after considering all your alternatives, you are making an economic choice. | | |
| 4 | Maher, John
<u>Ideas About Taxes</u>
Watts | 1972 41p.
K-3 \$3.75 |
| Presents essentials about taxes for the very youngest reader, explaining why we have taxes, how they are collected and how they are used. | | |
| 4 | Maher, John E. and S. Stowell Symmes
<u>Ideas About Others and You</u>
Watts | 1969 48p.
K-3 \$3.50 |
| The many ways of doing things are called systems and our economy is the system that produces the things we want. Explains how we need one another to help make our economy work. | | |
| 5 | Maher, John E. and S. Stowell Symmes
<u>Learning About Why We Must Choose</u>
Watts | 1970 68p.
4-6 \$3.50 |
| Organized to cover economic choices, scarcity, measurement of scarcity, resources and changing resources. | | |
| 2 | May, Julian
<u>Why People Are Different Colors</u>
<u>Holiday House</u> | 1971 1-3 \$4.50 |
| Survey of five main races, emphasizing adaptation to different environment. Discusses skin color, hair, noses, eyes, and body type. | | |

RESOURCES

Books - Juvenile

SOCIAL SCIENCES

Concept
level

- 6 Murphy, Robert
A Heritage Restored: America's Wildlife Refuges
Dutton 1969

6-8

Presents history of and need for major national wildlife sanctuaries and lists those found in the continental United States, Alaska and Hawaii.

BEST COPY AVAILABLE

- 6 Paradis, Adrian A.
Reclaiming the Earth: Jobs that Help Improve the Environment
McKay 1971 180p.

7-12

\$4.95

Looks at the many careers which can be important in the work of combatting pollution -- architects, engineers, industrialists, communicators, and researchers. Deals with problems related to air and water pollution, destruction of forests and wildlife, soil conservation and solid waste.

- 6 Pringle, Laurence P.
One Earth, Many People: The Challenge of Human Population Growth
Macmillan 1971 86p.

5-8

\$4.95

Examines problems caused by the world's rising population. Presents different viewpoints of biologists and economists, ecologists and demographers.

- 4 Radlauer, Edward and Ruth
Water For Your Community
El Grove 1968

3-5

An interesting and informative book about water. Covers a broad scope -- sources, storage, distribution, treatment, desalination, and future prognosis.

- 3 Raskin, Edith
World Food
McGraw-Hill 1971

5 up

\$4.72

A story of agricultural revolution -- increasing man's food supply and tapping new sources of food.

- 3 Rich, Louise D.
The First Book of Lumbering
Watts 1967

4-6

Traces the development of lumbering from the Vikings to the present and from Main to the West Coast. Describes how this industry has contributed to the development of America. Discussed modern lumbering methods, importance of wood, and forest conservation.

RESOURCES

Books - Juvenile

SOCIAL SCIENCES

Concept
level

- | | | | | |
|---|---|------|------|--------|
| 3 | Russell, Solveig Paulson. <u>Lights for The Night: A First Look at Illumination</u>
Walck | 1970 | 2-3 | \$3.75 |
| | Focuses on such things as oil, animal fat, electricity, fire and natural gas and illuminating items made from them --- candles, lamps, street lights, lighthouses, etc. | | | |
| 6 | Russell, W. M. S. <u>Man, Nature and History</u>
Natural History Press | 1969 | 8 up | |
| | Surveys man's attempt to become independent of his natural environment by controlling it. Covers climatic regions: wet, dry, and temperate. Includes a discussion of the results of man's tampering with nature, producing such side-effects as increase of infection disease and population explosion. | | | |
| 3 | Shilstone, Beatrice. <u>The First Book of Oil</u>
Watts | 1969 | 4-6 | \$3.75 |
| | How oil was formed, techniques for exploring and frilling for oil, how it is transported. Its importance as a resource. | | | |
| 3 | Sterland, E.G. <u>Energy Into Power</u>
Natural History Press | 1967 | 8 up | |
| | Historical presentation of various devices man had developed to convert energy into useful power. | | | |
| 4 | Stevens, Leonard A. <u>The Town That Lauanders Its Water: How A California Town Learned to Reclaim and</u>
Coward | 1971 | 5-8 | \$4.45 |
| | Presents the case of Santee, California which cleans and reuses its sewage water for recreation and irrigation. | | | |
| 3 | White, Florence M. <u>Your Friend, The Tree</u>
Knopf | 1969 | 3-6 | |
| | In easy-to-read verse-like form, describes fifteen trees, their properties and the multiple roles they play in the lives of men. | | | |

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RESOURCES

Books - Adult

SOCIAL SCIENCES

Concept
Level

BEST COPY AVAILABLE

- 5 Abrams, Charles. The Language of Cities: A Glossary of Terms
Viking 1971 365p. \$10.00
- 3 Angier, Bradford. How To Live in The Woods on Pennies A Day
Stackpole 1971 192p. \$6.95
Cheerful, knowledgeable instruction including methods of preserving food, which consists primarily of wild birds, animals, and berries gleaned from the land for living in the forests of Canada and Alaska.
- 5 Banham, Reyner. Los Angeles: The Architecture of Four Ecologies
Harper and Row 1971 256p. \$6.95
Attempts to combine history, architectural analysis, social observation, and urban planning.
- 4 Barton, Robert. Oceanology Today: Man Explores the Sea
Doubleday 1971 192p. \$5.95
The author makes a good case for government participation in the development of the ocean's resources. He explains what oceanology as an industrial activity includes: fishing, mining, desalinated water, tidal power, recreation, and the extraction of oil and gas.
- 3 Bateman, James. Animal Traps and Trapping
Stackpole 1971 273p. \$8.50
Bateman discusses the history and development of traps for insects, birds, fish, and all sorts of mammals from early man to the present.
- 3 Bay Laurel, Alicia. Living on The Earth
Random 1971 193p. \$3.95
Provides detailed instructions for pack-packing, building primitive shelters in the wilderness, dealing with insects. The section on organic food uses of herbs, and esoteric nutrients is particularly interesting.
- 5 Bendix, Reinhard. Embattled Reason: Essays on Social Knowledge
Oxford 1971 395p. \$9.75
Twelve essays trace western man's basic assumptions about life from the Age of Enlightenment to the present, considering value assumptions basic to the social sciences and how a sociological theory of social change can be developed.

RESOURCES

Books - Adult

SOCIAL SCIENCES

Concept
level

BEST COPY AVAILABLE

- 2 Bennett, John W. Notneren Plainsmen: Adaptive Strategy and Agrarian Life
Aldine Publications 1971 352p. \$9.75
Study of the feedback between the human use of environment and the social organization and cultural values of a sample region of the plains of Canada. A comparison of several cultures existing simultaneously in the same laboratory results in a clear description of the dynamics of ecological adjustment.
- 4 Berger, Samuel R. Dollar Harvest: The Story of the Farm Bureau
Heath Lexington 1972 221p. \$7.95
This book portrays the Farm Bureau as not the Spokesman for the American dirt farmer but a giant business and a strongly conservative political force. The author points out that, as the country's largest rural organization the Farm Bureau has been the detriment rather than an aid to preserving the family farm.
- 3 Berglund, Berndt and Clare E. Bolsby. The Edible Wild: A Complete Cookbook and Guide to Edible Wild Plants in Canada and Eastern North America
Scribner 1971 188p. \$7.95
Covers edible shoots, leaves, roots, nuts, seeds, fruits, tobacco, and sugar substitutes and seasonings; plants are arranged alphabetically within each group. Two categories of recipes are given: "In The Bush" and "Home Recipes".
- 5 Black, John. The Dominion of Man: The Search for Ecological Responsibility
Aldine 1971 169p. \$7.50
Intelligent sober examination by a professor of natural resources at the University of Edinburgh. Pointing out that the ecological responsibility cuts to the heart of economic and social philosophy and that there are no easy answers.
- 6 Boyle, Robert H and others. The Water Hustlers
The Sierra Club 1971 253p. \$7.95
Three documented essays describe Texas, California, and New York State water use as presently conducted and planned for the future. Each scheme is either partly or fully completed or on the drawing boards and all are viewed by the contributors as unwise manipulation of natural resources.
- 6 Brenkenfeld, Gurney. Columbia and the New Cities
Washburn 1971 332p. \$8.95
The Columbia story is a casebook on how to build a town - that intimately involves the people who live in it. Columbia exists.

Books - Adult

SOCIAL SCIENCES

**Concept
Level**

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|---|---|---|------|-------|---------------|
| 3 | Brown, Dee. | <u>Bury My Heart at Wounded Knee: An Indian History of the American West</u> | 1971 | 487p. | \$10.00 |
| | Holt | Indian version of the white man's invasion of Indian land between 1860 and 1890 describes how men destroyed not only the land's natural resources but its native inhabitants as well. | | | |
| 3 | Brown, Tom. | <u>Oil on Ice: Alaskan Wildness at the Crossroads</u> | 1971 | 160p. | \$1.95 |
| | Sierra Club | Oil versus wilderness poses questions that have not been answered. Brown reaches the conclusion in his study that the damage to the environment will be too great -- the wilderness must be preserved and developed only as a tourist resource. | | | |
| 3 | Cailliet, Greg, Paulette Setzer, Milton Love. | <u>Everyman's Guide to Ecological Living</u> | 1971 | 119p. | \$.95 |
| | Macmillan | Contributors have effectively outlined specific practices which action-oriented individuals can follow in order to lessen the environmental problems produced by consumerism. | | | |
| 4 | Calkins, Frank. | <u>Rocky Mountain Warden</u> | 1971 | 265p. | \$6.95 |
| | Knopf | Dedicated conservationist describes his life as a game warden in Utah and his experiences hunting and fishing. | | | |
| 6 | Callahan, Daniel (editor) | <u>The American Population Debate</u> | 1971 | 380p. | \$8.95/\$2.50 |
| | Doubleday | A collection of 23 previously published essays contributed by biologists, demographers, sociologists. Most agree there is some kind of population problem but there is variation of views concerning American population growth and its implications for quality and survival of American life. | | | paper |
| 6 | | <u>Career Opportunities: Ecology, Conservation and Environmental Control</u> | 1971 | 211p. | \$6.95 |
| | Ferguson: Doubleday | Survey of two-year, post-high school programs related to ecology. These are technician positions in floriculture, park and recreation, urban planning, etc. Articles outline the type of work done, educational requirements, current salaries. | | | |

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RESOURCES

Books - Adult

SOCIAL SCIENCES

Concept
Level

- 5 Cauthen, Kenneth Christian Bio-Politics: A Credo and Strategy for the Future
Abingdon 1971 160p. \$ 4.00
The author feels the church can be instrumental in creating changes in individual and national attitudes toward pollution, poverty, and race. He urges formation of interdisciplinary centers for the study of alternative futures.
- 6 Chamberlain, Neil W. Beyond Malthus: Population and Power
Basic Books 1971 214p. \$ 6.95
Extending the premises of Malthus' theories to modern times, the study emphasizes the effect of population increase on numbers of people rather than on resources within a country or on relations between countries -- weighing societal, international, and moral effects of the population problem and urges recognition of the fact that the world cannot maintain the status quo.
- 3 Chasan, Daniel Jack Klondike '70: The Alaskan Oil Boom
Praeger, 1971 184p. \$ 6.95
Documented, researched argument for the preservation of wilderness.
- 3 Clawson, Marion America's Land and Its Uses
Johns Hopkins University Press 1972 176p. \$ 8.50
Compact, non-technical account of the nation's land and its many uses -- past history, present needs trends, and future possibilities. Chapters on farming, grazing, forestry, urbanization, and recreation.
- 4 Clawson, Marion The Bureau of Land Management
Praeger 1971 232p. \$ 8.50
Tells the origins and responsibilities of this bureau of the government.
- 6 Cookson, John A Survey of Chemical and Biological Warfare
Monthly Review 1971 420p. \$ 9.75
Detailed overview of the research being conducted on the subject of chemical and biological warfare.
- 2 Coon, Carleton Stevens The Hunting Peoples
Atlantic-Little 1971 413p. \$10.00
Surveys hunters and gatherers who lived without agriculture and possessed no domesticated animals except dogs. Describes basic equipment used by hunters, travel and transport, the quest for food, social organization, rites, structure of government, and the art of shamans and healings.

RESOURCES

Books - Adult

SOCIAL SCIENCES

Concept
level

BEST COPY AVAILABLE

- 4 Cooney, Timothy J. and James Haughton. It's Up To You: A Guide to Changing the System
Washburn 1971 104p. \$4.25
Attacking consumerism and waste and espousing tax reform, the authors urge a shift of priorities from war to domestic needs and press for much-needed Congressional reorganization. Selective boycott, self-discipline, personal witness, political lobbying are some ways the authors suggest to bring about change.
- 4 Corson, John J. Business in the Human Society
McGraw-Hill 1971 314p. \$12.50
Describes public and private interest to be so intermixed as to be virtually the same.
- 6 Creasey, John. The Smog: A Story of Dr. Palfrey
Walker 1971 192p. \$4.95
Fictional story of a yellow smog that suddenly wipes out a quiet little English village and then in Wyoming takes a grim undertone in today's polluted world.
- 6 Day, Albert M. Making a Living in Conservation
Stackpole 1971 96p. \$3.95
Reviews opportunities and requirements for high school graduates to Ph.D's for employment in the conservation areas of forestry, wildlife, fisheries, oceanography, parks, soils, environmental health, and conservation law enforcement. Chapters on how to get these kinds of jobs, where to write for information, and where to get the education.
- 4 Dogan, Mattel (editor). Quantative Ecological Analysis in the Social Sciences
MIT 1971 607p. \$25.00
The product of an international symposium, this compilation of contributions from 29 representatives of social sciences from many lands and different disciplines provides different approaches and perspectives on the ecological conditioning of social behavior.
- 4 Downing, Paul B. Air Pollution and the Social Sciences
Praeger 1972 290p. \$16.50
Experts from the Project Clean Air of the University of California assess the sociological, psychological, political, legal, and economic aspects of air pollution control technology.

RESOURCES

Books - Adult

SOCIAL SCIENCES

Concept
level

BEST COPY AVAILABLE

- 5 Drucker, Peter F. Men, Ideas, and Politics 1971 278p. \$6.95
Harper
- Essays concerned with interrelationships between economic, political and social thought and actions. Emphasis is placed on political ecology -- the need for purposeful, innovative, political theory and new social policy and accountability in response to altered economic conditions and structures and the problems and possibilities posed thereby in a technological era.
- 4 Dunbar, Tony. Our Land Too: Social Conditions 1971 231p. \$5.95
Pantheon
- Studies poverty in the United States in an attempt to show the need for radical social changes rather than more welfare.
- 4 Environmental Action. Earth Tool Kit: A Field Manual for Citizen Activities 1971 369p. \$1.25
Simon & Schuster
- Issued in connection with Earth day, serves as a practical guide for citizens to act as individuals or in groups to protect the environment.
- 5 Elazar, Daniel J. Cities of the Parirrie: The Metropolitan Frontier and American Politics 1971 514p. \$15.00
Basic Books
- Explains the trend of United States citizens toward suburban living. Interprets the story of three successive frontiers -- land, urban, and metropolitan.
- 6 Falk, Richard A. This Endangered Planet: Prospects and Proposals for Human Survival 1971 495p. \$8.95
Random House
- Analyzes four factors as underlying the ecological crisis: 1. the war system with its constant possibility of intentional or accidental nuclear disaster, 2. overpopulation, 3. depletion of natural resources through frivolous overuse and waste, 4. the deterioration of the entire environment to a point where it will no longer be lifesustaining. Considers the philosophical, political, and economic changes that are essential to avert catastrophe.
- 3 Fallows, James M. The Water Lords, The Nader Study Group Report on Industry and Environmental Crisis IN Savannah 1971 294p. \$7.95
Grossman
- The study shows that everything is connected to everything else and that we tamper with our world at our peril. Reads like a novel with heroes and villains.

RESOURCES

Books - Adult

SOCIAL SCIENCES

Concept
level

BEST COPY AVAILABLE

- 6 Fanning, Odum. Opportunities in Environmental Careers Universal 1971 271p. \$5.75
Briefly surveys each of eight large fields of environmental involvement, emphasizing need for early awareness of environmental programs and outlining governmental policies and programs.
- 4 Farkas, Suzanne. Urban Lobbying: Mayors in the Federal Arena New York University Press 1971 335p. \$7.95
Focuses on efforts of urban oriented interests to influence national policy through more effective urban programs.
- 6 Feldman, Stephen and Van Gordon Sauter. Fabled Land, Timeless River: Life Along the Mississippi Varied, moving social document presenting a microcosm of contemporary American society contrasting scenic beauty and commercialism, dying towns, changing cities.
- 6 Fitch, Lyle C. Agenda For A City: Issues Confronting New York Sage 1971 718p. \$4.95
Leading planners, administrators, and academics examine major issues confronting the city.
- 6 Fraser, Dean. The People Problem: What You Should Know About Growing Populations and Vanishing Resources Indian University Press 1971 248p. \$6.95
Overpopulation problems such as housing and food shortages, land use, pollution are discussed. Explores possibilities for alternatives and urges concerted effort short of government control to achieve zero population.
- 4 Friedman, Wolfgang. The Future Of Oceans Braziller 1971 128p. \$5.95
Urges that national jurisdiction of natural resources of the subsoil and seabed of the continental shelf contiguous to the United States coasts be redefined and precise boundaries be drawn between areas of national and international control. Proposes an international oceanbed regime coordinated with a sea regime in which concern for exploitation of mineral resources would be balanced with concern for marine biology, pollution prevention, shipping, and cable laying.

RESOURCES

Books - Adult

SOCIAL SCIENCE

Concept
Level

BEST COPY AVAILABLE

- 4 Frome, Michael. The Forest Service
Praeger 1971 256p. \$8.50
Shows how, in the past seventy years, there has been a shift in emphasis from economic consideration to a newly adopted ecological approach in regard to the Forest Service. Explores such problems as using national forests solely for timber production, controlling mining activities, and civilizing the wilderness with roads and recreational facilities.
- 6 Gofman, John W. and Arthur R. Tamplin. Poisoned Power: The Case Against Nuclear Power Plants
Rodale 1971 386p. 2.95 paper, \$6.95
Alerts the public to the potential dangers inherent in power produced by nuclear electrical generating plants. Presents the technical side with intent to give support to those who wish to bring effective pressure against building nuclear power plants.
- 3 Goldstein, Jon H. Competition For Wetlands in the Midwest: An Economic Analysis
Analyzes the problem of how to utilize a scarce resource offering alternative but incompatible uses.
- 3 Graham, Frank. Man's Dominion: The Story of Conservation in America
Evans & Co. 1971 339p. \$8.95
Tells the story of the conservation movement and the men and women who shaped it in the middle 1880's until the passage of the Wilderness Act in 1964 with comments on the new conservation.
- 5 Habermas, Jorgen. Knowledge and Human Interests
Beacon Press 1971 356p. \$7.50
Offers a balanced presentation of many facets of interest and knowledge. Sketches the specific work of man's three knowledge-constitutive interests: control of nature, social action, and critical reflection.
- 3 Hall, Edward. The Hidden Dimension
Anchor 1971 \$1.45
An anthropologist examines man's use of space in public and in private.
- 4 Hagevik, George H. Decision Making In Air Pollution Control: A Review Of Theory and Practice With Emphasis On Selected Los Angeles and New York City Management Experiences
Praeger 1971 217p. \$15.00
Deals specifically with the decision practices which have led to legislation for air pollution control. Surveys the history of relevant legislation and outlines the use of bargaining research based on game theory in the management of air quality - using the experiences of Los Angeles and New York to detail contrasting case studies from which generalizations for planning air quality management are developed.

RESOURCES

Books - Adult

SOCIAL SCIENCES

Concept
level

- 3 Harrison, Gordon. Earthkeeping: The War With Nature and A Proposal For Peace
Houghton 1971 \$5.95
Discusses ways in which human beings throughout history and most of prehistory have modified or interfered with nature, and appraises the current problems. Can serve as an introduction to the anthropology, sociology, and economics of the many faceted environmental problem.
- 3 Helfrich, Harold W. Jr. (editor). The Environmental Crisis: Agenda for Survival
Yale University Press 1971 \$2.95
Second volume of papers by contributors to the Yale University's School of Forestry symposium on "Issues in the Environmental Crisis".
- 4 Henkin, Harmon and others. The Environment, The Establishment and The Law
Houghton 1971 223p. \$6.95
Readable summary, including highlights from the transcript from the Wisconsin DDT hearings called to determine if DDT was or was not legally susceptible to the State's water pollution control laws.
- 4 Hite, James C. and James M. Stepp (editors). Coastal Zone Resource Management
Pareger 1971 192p. \$13.50
Edited proceedings of the Symposium on Management Systems for the Resources of the Coastal Zone held in June, 1970 and attended by authorities in law, economics, ecology, and planning. Examines current and proposed management systems and proposes federal and state legislation and alternative management systems.
- 3 Hoyt, Elizabeth E. Choice and The Destiny of Nations
Philosophical Library 1971 154p. \$5.00
Attempts an understanding of the individual choice-making and by extension, the "destiny of nations" using materials from several of the social sciences --- anthropology, psychology, sociology, political science, history, and economics.
- 3 Hutchings, Monica and Mavis Caver. Man's Dominion: Our Violation of the Animal World
Humanities Press 1971 192p. \$6.50
Concerned with killing of animals for fur and sport and cruelty of fox hunting.

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RESOURCES

Books - Adult

SOCIAL SCIENCES

Concept
Level

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|---|---|------|-------|---------|
| 6 | Johnson, Stanley. <u>Life Without Birth Little</u> | 1971 | 264p. | \$7.95 |
| | Discusses family planning efforts in Brazil, Chile, Japan, Taiwan, Hong Kong, Singapore, Java, Thailand, India, China, Pakistan, and Kenya. Briefly analyzes cultural, religious, social, and economic considerations within the context of national goals rejecting nationalism in the long run in favor of world government approach to population control. | | | |
| 3 | Jones, Howard Mumford. <u>The Age Of Energy: Varieties of American Experience, 1965-1915</u> | 1971 | 545p. | \$12.50 |
| | Interprets America's cultural development in terms of energy - in technological discoveries, growth of cities and affluence, and outpourings of words and in other areas and in concomitant regional and national tensions and dimensions. | | | |
| 6 | Kelley, Ben. <u>The Pavers and The Paved Brown, D. W.</u> | 1971 | 183p. | \$5.95 |
| | A chapter, "How to Halt a Highway," should prove useful to antihighway activists. | | | |
| 4 | Kneese, Allen V., Sidney E. Rolfe and Joseph W. Harned (editors). <u>Managing the Environment: International Economic Cooperation for Pollution Control</u> | 1971 | 300p. | \$15.00 |
| | Praeger
Edited proceedings of conference to seek means of creating an international system of environmental control. | | | |
| 5 | Kunkel, John H. <u>Society and Economic Growth: A Behavioral Perspective of Social Change</u> | 1971 | 368p. | \$6.50 |
| | Oxford
Attempts to evaluate the present state of our knowledge concerning the sociological and psychological conditions for economic development, to formulate a set of concepts and propositions for use in constructing a theory of the social and psychological aspect of economic development. Describes the key social constants and variables to be considered in formulation and implementation of economic development programs. | | | |
| 3 | Logsdon, Gene. <u>Two Acre Eden</u> | 1971 | 216p. | \$5.95 |
| | Doubleday
Organic gardening including examples of what not to do and tips for successful subsistence living. | | | |

RESOURCES

Books - Adult

SOCIAL SCIENCES

Concept
level

- 1 Love, Sam (editor). Earth Tool Kit
Pocket Books
1971
369p. \$1.25
This book emphasizes group strategies and tactics for environmental battles. Prepared by Environmental Action, the organization responsible for coordinating EarthDay, it provides some interesting material on collecting information on organizing for confrontation.
- 1 McLaughlin, Terence. Dirt: A Social History As Seen Through The Uses and Abuses of Dirt
Stein & Dat
1971
182p. \$6.95
Surveys the role of dirt and filth in the history of civilization - rats, lice, fleas, epidemics of cholera, plague, and sanitation or the lack of it, air pollution and abundant water supply.
- 6 Mines, Samuel. The Last Days of Mankind: Ecological Survival or Extinction
Simon & Schuster
1971
319p. \$7.95
Account of man's infliction of atrocities upon his environment. Material is current and presented clearly, but there are few suggestions for confronting environmental ills.
- 3 Morgan, W. and R.C. Muntun. Agricultural Geography
Barnes & Noble
1971
140p. paper \$3.50, 6.50
Study of the major features and factors of location and distribution of agricultural enterprises.
- 2 Murphy, Robert. The Stream
Farrar
1971
205p. \$6.95
A novel telling how ten men shared ownership of an unspoiled 2,000 acre tract in the Pocono Mountains and how the one living there observes that spraying, road building, and other development were combining to ruin the tract and its stream. Gradually Jerry's interest in the fate of his own land is turned into concern for world ecology. Precise, beautiful description of nature.
- 6 National Geographic Special Publications Division. As We Live And Breathe
National Geographic Society
1971
239p. \$4.65
Discusses nonchemical ways to destroy insect pests, enforcement of government regulation of air pollutants, recycling of solid waste, advanced treatment of sewage, curbing of automobile emissions, and new pollution-free power production - a few of the ways in which progress is being made to correct abuses which cause pollution. Also comments on urbanization, population control and new, well-planned communities.

UNAVAILABLE
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RESOURCES

Books - Adult

SOCIAL SCIENCES

Concept
Level

BEST COPY AVAILABLE

- 6 Melkin, Dorothy. Nuclear Power and Its Critics: The Cayuga Lake Controversy
Cornell 1971 128p. paper 1.75, \$6.50
Study of the conflict between need for electric power and environmental effects of power generation in mid New York State. Cultural change is proposed as the means of effective treatment of social and environmental concerns.
- 3 O'Connor, Richard. The Oil Barons: Men of Greed and Grandeur
Little 1971 502p. \$8.95
Comprehensive portrait of the oil industry from the nineteenth century to the present pictures some of the men who command it in the United States and its vast power over governments and people around the world. Dates the beginning of preferential treatment of the United States oil industry to 1913, the year of the enactment of federal income tax and warns of the necessity of regulatory programs for environmental control.
- 5 Odum, H. T. Environment, Power, and Society
Wiley 1971 331p. \$9.95
Scholarly and technical format. Divisions of the development of man in nature pertaining to urban, agricultural, and environmental support and three types of power of the future, expanding, constant, and receding, coalesce the author's approaches to man's environmental systems.
- 4 Ofshe, Lynne and Richard Ofshe. Utility and Choice in Social Interaction
Prentice Hall 1971 202p. \$7.50
Reports on an application to social situations of a theory first developed to explain individual behavior in light guessing experiments. Develops a model of social decision-making of great predictive power.
- 6 Papageorgiou, Alexander. Continuity and Change: Preservation in City Planning
Praeger 1971 185p. \$29.00
Studies preservation in city planning -- a problem which is highly relevant to the future development of urban centers.
- 5 Papenek, Victor. Design for The Real World: Human Ecology and Social Change
Pantheon 1972 339p. \$8.95
Tells us how badly our World is designed and how things can be done better. Included are discussions of designs of nature as inspiration for men's designs, design and ecology, design education and design for survival. Urges designers to produce attractive, reasonably-priced things people really need.

RESOURCES

Books - Adult

SOCIAL SCIENCES

Concept
level

- 6 Pohlman, Edward. How To Kill Population
Westminster Press 1971 \$2.65 paper
Urges immediate research and experimental programs -- based mainly on financial incentives -- which he believes will lead to restraining humanity's increase.
- 4 Preston, Ronald H. (editor). Technology and Social Justice: An International Symposium On The Social And Economic Teaching of The World Council of Churches From Geneva 1966 to Upsala 1968
Judson 1971 472p. \$10.95
Essays by thirteen theologians and eight social scientists consider many themes including food, population, and the environment.
- 5 Reimer, Everett. School Is Dead: Alternatives in Education
Doubleday 1971 215p. \$5.95
Suggests an ideal society founded on lowered consumption, sharing, and conserving. Author's pre-
scription for alternates in education will be questioned.
- 5 Revelle, Roger and Hans H. Landsberg (editors). America's Changing Environment
Houghton 1971 314p. \$6.95
Scholarly, multidisciplinary approach to decision making in environmental management. Consensus
seems to be that our environmental problems can be lessened if we are willing to pay the price and
utilize multipurpose planning. Offers concrete suggestions for cleaning up our environment.
- 5 Robinson, John. Highways and Our Environment
McGraw 1971 340p. \$22.50
Shows how the growth of the automobile and highway industries has been a major factor in the des-
truction of our cities and in the degradation of our natural and social environments. Calls for
greatly increased spending on public rapid transit with funds coming from taxes on highway users
and the automotive industries. Stresses importance of organized citizen action against the power
wielded by the automobile and highway establishment in local, state and national government.
- 5 Rubner, Alex. Three Sacred Cows of Economics
Barnes & Noble
Explains why the author sees the three sacred cows -- gross national product, forecasting, and eco-
nomic planning -- as not useful.

FLYING DUTCHMAN
COPY 1538

RESOURCES

Books - Adult

SOCIAL SCIENCES

Concept
level

BEST COPY AVAILABLE

- 4 Sax, Joseph L. Defending The Environment: A Strategy For Citizen Action
Knopf 1971 252p. \$6.95
Discusses the role of the courts in protecting environmental quality. Offers rational effective approach to the reassertment of citizen initiative in the management of our environment.
- 5 Schneider, Kenneth R. Autokind VS. Mankind: An Analysis of Tyranny, A Proposal for Rebellion, A Plan A Plan for Reconstruction
Norton 1971 267p. \$7.95
Tells of the stranglehold of the automobile on mankind. Links the car to the depletion of resources, environmental pollution, the breakdown of transportation, and the creation of unworkable and unlivable cities. Suggests ways to influence institutions that determine use of the environment and design of cities and transportation and proposes an auto production bank similar to the soil bank.
- 5 Readings from Scientific American. Science, Conflict and Society
Freeman 1969 366p.
Essential reading for anyone who wants to understand the ecology of man and his environments. Cover Scientists and Society, The Roots of Social Behavior, Population and Heterogeneity, What Price Progress?, and War: The Anguish of Renunciation.
- 1 Shomon, Joseph James. Open Land for Urban America
National Audubon Society 1971 206p. \$7.50
Guidebook for the professional and non-professional on how to reserve and safeguard open land (living Greenspace) in urban areas. Discusses how air quality, noise levels, and temperatures are affected by openland. Emphasis is on ecology rather than on social consideration.
- 4 Schon, Donald A. Beyond The Stable State
Random House 1971 254p. \$7.59
Presents a suggestive convergence between the prevailing technocratic outlook and that of the counter-culture. For those unfamiliar with systems analysis, cybernetics, communications models, technological diffusion and future studies this book will not be easily understood.
- 4 Simms, D. Harper. The Soil Conservation Service
Praeger 1971 258p. \$8.50
Contains information suitable for high school students.

RESOURCES

Books - Adult

SOCIAL SCIENCES

Concept
level

BEST COPY AVAILABLE

- 3 Sloan, Howard N. and Lucille L. Sloan. A Pictorial History Of American Mining: The Adventure and Drama of Finding and Extracting Nature's Wealth From The Earth, from Pre-Columbian Times To The Present
Crown
1971
342p.
\$12.50
Covers the production of almost every mineral in each American mining area, from Pre-Columbian times to the space age, employing a chronological approach.
- 6 Small, William E. Third Pollution: The National Problem of Solid Waste Disposal
Praeger
1971
173p.
\$6.95
Discusses the costs and problems of solid waste disposal in our society, placing particular emphasis on the discarded automobile and on agricultural and industrial waste materials. Various aspects of collection and disposal technology and the environmental health problems resulting from our numerous wastes are discussed. Also demonstrates developments which offer hope for solutions to disposal problems.
- 5 Stone, Tabor R. Beyond The Automobile: Reshaping the Transportation Environment
Prentice-Hall
1971
148p.
\$5.95
Urges establishment of extensive and comprehensive fixed-route public transportation systems on an urban regional basis and further development of random-route private automobile networks and facilities.
- 3 Taghi, M. and John P. Milton (editors). The Careless Technology: Ecology of International Development
Doubleday/Natural Press
1971
1060p.
\$25.00
Uses actual case histories and some horror stories to illustrate ecological damage being done by careless introduction of technological progress into underdeveloped nations. Fifty studies show how international development programs are helping to destroy natural resources of two-thirds of our world's land.
- 6 Tiems, Duncan. The Urban Mosaic: Towards A Theory Of Residential Differentiation
Cambridge
1971
277p.
\$11.50
Examines that aspect of human ecology relating to urban residential differentiation of population by class, ethnicity, family status, and other characteristics. Introduction to factorial ecology providing a good overview of the social area analysis tradition in urban sociology.

RESOURCES

Books - Adult

SOCIAL SCIENCES

Concept
Level

BEST COPY AVAILABLE

- 5 Toynbee, Arnold. Surviving the Future
Oxford 1971 164p. \$5.95
- 2 United States Department of the Interior. A Good Life For More People
U.S. Government Printing Office 1971 416p. \$3.50
Tells how we can make life good for future Americans by providing jobs, housing, services, and recreation in country and small towns by making new uses of land, building new communities, rejuvenating old rural communities, and achieving a quality environment.
- 5 Van Tassal, Alfred J. (editor). Environmental Side Effects of Rising Industrial Output
Heath Lexington
Collection of essays appraising pollution problems in the United States as of thirty years hence from an economic point of view. Each covers a different problem --- industrial water, population growth, electric power, pesticides, etc.
- 6 U.S. Department of Agriculture. Landscape for Living: The Yearbook of Agriculture 1972
U.S. Government Printing Office 1972 416p. \$3.50
Contains a vast amount of how-to-do-it advice for home gardens. Also discusses ways to ease visual pollution, plants as climate changes, new towns, land planning, and redesigning downtown shopping centers, helping to raise the spirits of inner city residents, teaching youth about the environment.
- 5 Wallace, Bruce. Essays in Social Biology
Prentice-Hall 1971
Designed for the non-biologist.
- 4 Waltzman, Sanford. Conflict of Interest: Politics and The Mondy Game
Cowles 1971 214p. \$6.95
Examines the conflict between public duty and private interest and the inadequacy of present conflict-of-interest laws.
- 5 Weisberg, Berry. Beyond Repair: The Ecology of Capitalism
Beacon 1971 256p. \$6.95
Seeks to establish a framework of critique and reconstruction in which social imbalance must be understood simultaneously with ecological imbalance.

RESOURCES

Books - Adult

SOCIAL SCIENCES

Concept
level

- 6 Whiteside, Thomas. The Withering Rain: America's Herbicidal Folly 1971 224p. \$6.95
Dutton
Shows how our herbicidal defoliation program came about, how it was carried on. A government sponsored study warning of the dangers of defoliation pried open by Nader's Raiders.

BEST COPY AVAILABLE

RESOURCES

16 MM Film

SOCIAL SCIENCES

Concept Title Level Dist.	Grade level	Year Released	Length	Color	Cost Rent	Cost Purchase
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BEST COPY AVAILABLE

6 ABANDONMENT OF THE CITIES

NBC

1971

11 minutes

color

\$180

Shows scenes of abandoned, broken-down apartments in Cleveland, St. Louis, and New York -- areas that testify to the growing problem of remaining in the city when vandalism, crime and lack of building maintenance funds force landlords and tenants to move where life is safer and more sanitary.

2 AFRICAN COMMUNITY - THE MASAI

BFA

1970

16 minutes

color

Shows how nomadic Masai live in the highlands of East Africa. Describes their dependence on the land, their adaptation to the environment. (cat.#1720)

6 THE AGING OF LAKES

EBEC

12-adult

1971

14 minutes

color

Explains natural process of aging in lakes, shows the role of man in causing lakes to age at accelerated rates, reveals effects of premature aging, and demonstrates ways to reverse this process by applying research and technology.

6 ALTERED ENVIRONMENT SERIES: AN INQUIRY INTO THE AMERICAN WILDLANDS

BFA

K-9

1971

10 minutes

color

\$135

Brief narration mentions the abundant natural resources originally found on the North American continent, introduces concept of renewable and non-renewable resources, and poses questions regarding the effect of increased population in relation to the limited natural wealth and the value of managing remaining wildlands. Selective editing encourages viewer to draw his own conclusions to provocative narration.

ALTERED ENVIRONMENTS: AN INQUIRY INTO THE AMERICAN CITIES

BFA

K-9

1971

10 minutes

\$8.50

\$125

Film involves students in analysis of factors that must be considered in the design of cities and environmental destruction that results from urban sprawl.

ARK

Barr

6-up

1970

20 minutes

Tells the story of one man's valiant attempt to keep alive a community of wild creatures native to a small pond by enclosing the pond in a glass house which protects them from the polluted world outside. But other men cannot let him be and destroy his "Walden Under Glass". (cat.#1604)

RESOURCES

16 MM Film

SOCIAL SCIENCES

Concept Title level Dist	Grade level	Year Released	Length	Color	Cost Rent	Cost Purchase
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5 CATERPILLAR

Learning Corp. of America
1971 18 minutes color
Fantasy about a boy who plays a harmonica and a caterpillar who enjoys dancing to the music interweaving science-natural and moral themes drawn from the relationship between the boy and his friend and their mutual activities.

4 ATONEMENT

Films Inc. 7-12 1971 52 minutes color \$25.00 \$500
U.S. and Canada work together to preserve threatened species of North American wildlife.

6 THE AUTOMOBILE IN AMERICA - A TIME OF CHALLENGE

Hearst 1971 14 minutes b&w
Traces growth of automobile industry and its impact on the American way of life. (9375 cat. #)

6 CITIES IN CRISIS - A MATTER OF SURVIVAL

Universal 1970 10 minutes color
Contrasts ugliness of technological growth with nature's beauty. Examines causes, effects, and possible solutions to problems of pollution. (cat.# 1769)

2 CITY AT NIGHT

Churchill 1971 15 minutes color
Sequences are shown from early evening into the wee hours of the morning. Highlight the variety in a large urban city. Networks of various moods are sensed.

1 CITY - ONE DAY

AIMS 6-9 1969 18 minutes color \$225
One day in the life of New York City without narration with original musical score -- emphasizing the daily work and the people of the city designed to elicit student response and discovery. (cat.#01067)

4 ECOLOGY - SAVING OUR NATURAL RESOURCES

Neubacher-Vetter Film Productions 1970 10 minutes color
Alerts students to problems related to pollution and destruction of natural resources and shows how they can help improve our environmental living conditions.

BEST COPY AVAILABLE

RESOURCES

16 MM Film

SOCIAL SCIENCES

Concept Title Level Dist.	Grade Level	Year Released	Length	Color	Cost Rent	Cost Purchase
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3 ECONOMIC GEOGRAPHY: Comparing Two Nations

BFA	4-8	1971	10 minutes	color		\$150
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Simplified overview of ways in which a nation's economy determines the standard of living of its people. Compares two geographically and culturally similar nations--one with a one-crop economy, unskilled labor, and undevelopable income and the other with diversified economy which stimulates skilled labor and varied trade in the world market. Use of natural resources for manufacturing is concluded to be determining factor in the standard of living and the obstacle underdeveloped nations must overcome.

2 THE END OF ONE

Learning Corp. of America	7-9	1971	7 minutes	color		
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Presents an allegory on greed, a parody of life, or a death-knell for our environment. Shows sea gulls swooping down to extract edible tidbits from a huge city trash dump and, at a distance, a lone sick bird limps, struggles and finally dies while his fellows continue their raucous competition as unaware of his suffering as they are on an ominous roar in the distance. (cat.#4343)

6 ENVIRONMENT

BFA		1971	38 minutes	color		
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Shows that, while such practices as high-technology farming can be destructive to the land, the products of this farming are vitally needed. After posing questions about whether we can preserve our environment and still hold on to our technology and life style, the film is left open-ended.

4 EVERY DAY OF OUR LIVES

Disrey	7-12	1970	19 minutes	color		
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Discusses faith as the unifying force which holds society together, pointing out that the only real value of rules and regulations comes from our faith that most people will abide by them. Tells how nature itself has provided the greatest example of faith by enabling man to observe an unchangeable cycle of laws at work and how men have demonstrated the strength of their belief by the forcefulness of their actions. Gives examples from sportsmanship to farming and outer space. (cat.#1823)

3 FROM THE FACE OF THE EARTH

King Screen Productions		1970	19 minutes	color		
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Presents imaginative story of what life may be like on earth in the year 2000 as seen through the eyes of a teen-age girl and her grandfather. They visit the area where the family mental pollution became critical.

RESOURCES

16 MM Film

SOCIAL SCIENCES

BEST COPY AVAILABLE

Concept Title Level Dist.	Grade level	Year Released	length	Color	Cost Rent	Cost Purchase
3 GARDEN METHODS Perennial Ed.	4 up	1971	11-16 minutes	color	\$70 set	
Basic gardening techniques: Garden Soil Preparation, Vegetable Gardening, Tree and Shrub Planting, Indoor Plants.						
4 GOOD CLEAN FUN BFA	4 up	1971				
Documents a positive approach to the problem of litter -- stage a "clean-in". It is a social event as well as an opportunity for people to participate in the care of their environment.						
4 HAPPY TUESDAY RECYCLING JUG BANK TRUCK King Screen	K-4	1971	15 minutes	color		
Film parable suggests that we reassess our attitudes and values and seriously consider recycling both material and human resources.						
4 AN IMAGINARY THEY Modern Learning Aids	7-9	1969	22 minutes	color		
Pinpoints and defines the mystical and far-removed "they" to explore the need for rules and laws. Shows who really makes them and illustrates that laws are flexible set of rules designed to do the greatest good for the greatest number. (cat.#1112)						
6 ISLAND OF DREAMS AIMS	K-12	1971	10 minutes	color	\$15	
Animated fable in which a man, tired of crowds, pollution, and mechanized monotony, leaves the city for the desert island of his dreams; then swiftly transforms the dream island into a crowded, polluted, mechanized nightmare.						
6 A LAND DETRAYED Higgins	4-9	1971	10 minutes	color		
Shows that people are the only ones who can make America ugly and people are the only ones who can restore and protect her beauty. (cat.#5981)						
5 LATE TUESDAY ON MUDDY FLATS King Screen	6 up	1971	15 minutes	color	\$20	
What happens to the people and their Muddy Flats sanctuary when the city government decides to bring in the bulldozer to create an industrial park.						

RESOURCES

16 MM Film

SOCIAL SCIENCES

Concept Title level Dist.	Grade level	Year Released	Length	Color	Cost Rent	Cost Purchase
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BEST COPY AVAILABLE

1 LEARNING ABOUT LAND AND WATER
AIRS

9 minutes

color

Vividly explains pictorial symbols on maps and globes and what geographical places they represent. Defines basic terms and types of land and water areas. Explores the interrelation of natural and cultural geography.

6 LIKE RINGS ON WATER

Pyramid 9 up

1971

16 minutes

b&w

\$15

English version of a Swedish film that questions the way our cities are growing and crowding.

6 LITTER MONSTER, THE

Higgin 4-9

1971

17 minutes

color

Presents overview of litter problem indicating the dollar costs per year to clean up littered areas. Points out that money could be better used to support medical research or find better housing projects. Shows a variety of projects across the nation where young people have recognized the litter problem and are doing something about it. (cat.#1681)

5 LITTLE MAN, BIG CITY

Center for Mass Communication of Columbia University Press

4 up

1969

color

Simple animation portrays problems of Little Man living in today's overcrowded, noisy, and polluted cities. Describes cures to restore health to cities and make them enjoyable places to live.

3 MAN AS HUNTER AND FOOD GATHERER

McGraw 7 up

1970

color

\$285

Studies the African bushman as an example of a hunting, food-gathering people. Interesting information recorded in a well narrated discussion and portrayal of hunting techniques, gathering of roots and wild melons, division of labor, social structure, and the importance of tools, weapons, and fire.

3 MAN IN HIS ENVIRONMENT II - FOOD FROM THE RAINFOREST

BFA 7-9

1971

17 minutes

color

Shows how the Choco Indians of Central and South America supply most of their own food by hunting, fishing, gathering and simple agriculture. Tells how boys hunt and fish with their fathers while girls learn to gather and prepare food with their mothers. Shows how surplus products are taken away by canoe to the trading post which is several days journey away. Notes that 12,000 years ago all men were totally dependent on the environment in this way. (cat.#1855)

RESOURCES

16 MM Film

SOCIAL SCIENCES

CONCEPT Title
level Dist.

Grade
level

Year
Released

Length

Color

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Purchase

BEST COPY AVAILABLE

2 THE MAN HUNTERS

Film Inc.

6 up

1971

53 minutes

Narrated by actor E.G. Marshall, examines man's search into the unknown.

6 MAN IN THE DESERT

Australian News & Information

7-12 1971

19 minutes

color

\$5.00

Shows uses man has made of arid regions of Australia and the effect man has had on his environment.

6 MAN'S EFFECT ON THE ENVIRONMENT

BFA

7-12

1970

13 minutes

color

\$175

Shows some effect of man's exploitation of natural resources, and questions quality of life such environmental changes might provide.

5 MARSHLAND IS NOT WASTELAND

National Audubon Society

14 minutes

color

Points out the value of marshes as food producing areas and nursery grounds for mollusks and commercially important fish, for sea birds and migratory waterfowl, and for open space, beauty, and passive recreation.

4 MEN AT BAY

King Screen

9 up

1970

28 minutes

color

Deals with the many and varied problems of conservation faced by the residents of San Francisco. Emphasizes the water pollution problem and concerns relative to the land fill programs in the area.

2 MEXICO - A CHANGING LAND

Higgins

4-6

1970

21 minutes

color

Deals with Mexico's geography, cities, and villages and natural and industrial resources. Stresses the many changes taking place in this rapidly developing land. (cat.#1780)

2 MORNING, NOON AND EVENING

AIMS

K-6

1971

13 minutes

color

\$155

Counterpoints city versus country environments. In following members of two families the film shows the quiet of a mountain sunrise - first light in the city - people moving from their rest to countless places and duties - a world of productive effort - sunset and the world once more at rest.

RESOURCES

16 MM Film

SOCIAL SCIENCES

Concept Title
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3 OUR WILDERNESS

NBC

K-9

1971

10 minutes

color

\$10

Natural resources are not limitless - one vulnerable resource, land, our wilderness is studied.

BEST COPY AVAILABLE

2 THE PACIFIC WEST

EBEC

4-9

1969

24 minutes

color

Presents an overview of the Pacific West, its people, resources, industries, cities, opportunities, and history emphasizing the people as the primary resource. (cat.#7020)

6 PAVE IT AND PAINT IT GREEN

Extension Media Center, Univ. of California, Berkeley

Goes all the way visually in showing undesirable conditions created by bad development of the land, No narration or commentary.

4 PEOPLE WHO FIGHT POLLUTION

Churchill

1971

18 minutes

color

Demonstration that pollution problems can be solved by active participation of concerned people. Shows three people who find satisfaction, interest and even beauty in their daily routines in ordinary jobs. Stresses positive action and suggests things viewers can do to become people who fight pollution.

1 POINT PEELE

Films Inc.

5 up

1971

28 minutes

color

\$290

Brings up the role of national parks in today's society - whether they should be a haven for wildlife or to provide recreation for man's growing population. Shows the variety and complexity of relationships on a particular piece of land in a special environment.

6 THE POISONED PLANET

McGraw

7-12

1971

19 minutes

color

\$24

Examines pros and cons of the use of chemical pesticides, herbicides, fungicides and insecticides. Narrated by Jules Bergman, ABC News Science Editor.

6 POLLUTION - IT'S UP TO YOU

NBC

4-12

1971

10 minutes

color

\$10

Examines individuals' responsibility for maintaining the ecological balance of the environment.

RESOURCES

16 MM Film

SOCIAL SCIENCES

Concept Title
Level Dist.Grade
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Released

Length

Color

Cost
RentCost
Purchase

- 6 POLLUTION: LAND, AIR, WATER, AND NOISE
Academy 1970 17 minutes color
Covers four types of pollution - air, land, water, and noise. Points out that while enjoying high standard of living, we are threatened by excessive garbage, noxious poisons in the air and water.
- 6 POPULATION AND POLLUTION
IFB 1970 17 minutes color
Problems of pollution-caused misuse of environment and great demands of growing population. Describes environmental crisis and urges corrective actions.
- 3 PROBLEMS OF CONSERVATION - MINERALS
EBEC 7-9 1969 16 minutes color
Introduces a variety of mineral resources vital to the economy and way of life in the United States. Describes the non-renewable features of mineral resources and current efforts directed toward conserving mineral resources. (cat.#1025)
- 3 PROBLEMS OF CONSERVATION - OUR NATURAL RESOURCES
EBEC 4-10 1970 11 minutes color
Overview of worldwide ecological crisis emphasizing the management of natural resources with examples of management techniques.
- 3 PROBLEMS OF CONSERVATION - WATER
EBEC 7-9 1969 16 minutes color
Emphasizes importance of conserving water for use in areas with little rainfall. Discusses problems of water pollution in lakes, rivers, and bays and what can be done to correct them. Demonstrates how drinking water can be obtained from the ocean. (cat.#01018)
- 3 PROBLEMS OF CONSERVATION - WILDLIFE
EBEC 6 up 1970 13 minutes color
Introduction to the need for conservation of wildlife to preserve ecological balance of nature. Defines endangered status of species today, what has been done to control extinction.
- 2 RAINFOREST FAMILY
BFA 4-6 1971 17 minutes color
Describes life among the Choco Indians living in Central and South America. Explains climatic conditions of the area, what the Indians do to survive. Shows tools they developed. Native music supports the visuals.

BEST COPY AVAILABLE

RESOURCES

16 MM Film

SOCIAL SCIENCES

Concept Title
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Year
Released Length

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Cost
Purchase

4 RECYCLING

Stuart Finley

3-6

1971

21 minutes

color

\$300

Introduction to solid waste management systems based on recycling and mechanical and economic problems involved in implementing such procedures. Shows a variety of products undergoing recycling through both established and experimental methods. Scenes from all over the United States indicate the vastness of the effort to establish recycling as a workable procedure for future waste management.

4 RECYCLING WASTE

Journal Films

4-12

1971

12 minutes

color

\$11

Shows how raw materials can be conserved and pollution curbed by turning waste materials - paper, glass, metal - into useful products.

6 RISE AND FALL OF THE GREAT LAKES, THE

National Film Board of Canada 6-12 1970

17 minutes color

Discusses, through folk-song narration, the changes that have been taking place in the Great Lakes region and poses questions about future changes. Emphasizes roles of both nature and man.

6 THE RIVER

Macmillan

3

1971

10 minutes

color

\$10

Follows the ecological history of a river as it flows from its beginnings and how it becomes polluted as it flows into the sea when it is used as a dump and sewer.

4 SAVING THE ENVIRONMENT - THE GARBAGE EXPLOSION

EBEC

6 up

1970

16 minutes

color

\$200

Shows ecological problems created by the disposal of waste products from industry and individual families. Points out advantages and disadvantages of present methods for garbage disposal which include dumping and burning, landfills, incineration, compaction, and composting. Calls for imaginative thinking and technical innovation to solve the problems of waste disposal.

3 THE SEASONS

Arthur Mokin

6 up

1971

17 minutes

color

\$240

Without narration, projects a view of a farm in Pennsylvania where man and nature are shown as being in balance, where seasons change with elements of the land and fits into his surroundings. Shows how all things are interdependent and that some men do understand their role in nature. Music complements the visuals.

BEST COPY AVAILABLE

RESOURCES

16 MM Film

SOCIAL SCIENCES

Concept Title
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- 3 SEaweeds: An Introduction to Marine Agriculture
McGraw-Hill 7-12 1971 22 minutes color \$295
- Experts in marine botany and marine agronomy discuss the conservation of seaweeds, which have brought an important industry to the Canadian Maritime Provinces --- shows development of new species for cultivation, harvesting by horse and boat, drying, bleaching, and packing of seaweeds for use as food or as additive in foods, drugs, and other products.

- 3 A SLICE OF BREAD
Sterling 2-7 1971 12 minutes color \$165
- Recent film techniques are woven into the story of Fred's involvement with his environment.

- 3 SQUANDERED RESOURCES
Teaching Resources 7-14 1970 color
- A balance sheet of future needs and resources that adds up to problems for the future.

- 6 STREAM
Communico 9 up 1970 15 minutes color
- Unusual approach to the environmental problem in a story of one person's confrontation with and contribution to water pollution. There is no narration or commentary, but the musical accompaniment is effective in conveying the ever-increasing intrusion of man into nature. A basis for discussion of several aspects of pollution and the modern way of life on an individual or group level.

- 5 STREET OF THE SARDINE
Pyramid 7 up 1971 21 minutes color \$20.00
- Nostalgic look at John Steinbeck's Cannery Row in Monterey, California. Delves into man's mismanagement of his natural resources.

- 3 STRIP MINE TRIP
Churchill 7-12 1971 11 minutes color \$130
- An uninterrupted helicopter ride across fifteen miles of Kentucky land devastated by strip mining. Sound track includes justifications by mine operators and criticism by indignant residents.

- 5 SURVIVAL
ACI 7 up 1971 3 minutes color \$60.00
- Man dons suit of medieval armor and gas mask to battle smog, traffic, and noise of city; then, overwhelmed, he retreats to the country to discover a nude couple tempting him with an apple to join the "Garden of Eden" saying in the only spoken words of the film, "Care to join us?"

BEST COPY AVAILABLE

RESOURCES

16 MM Film

SOCIAL SCIENCES

Concept Title Level Dist.	Grade Level	Year Released	Length	Color	Cost Rent	Cost Purchase
6 SWIMMING HOLE King Screen		1971	11 minutes	color	\$15.00	
Parable about a farm boy who dams a stream to create a swimming hole. This has disastrous consequences because he has disturbed the balance of nature - insect and plant life diminishes, the brook muddies, a trout struggles helplessly in the now too shallow waters downstream.						
6 TENNESSEE RIVER - CONSERVATION AND POWER BFA	4-9	1971	14 minutes color			
Discusses the Tennessee Valley program which has proved that man can alter his environment to his advantage and correct past ecological mistakes. Tells how the development of this area by the federal government has resulted in benefits to both the people living in the area and to those beyond the valley. Points out that the quality of life in the area has been greatly affected by the wise use of this river resources. (cat.#1730)						
6 THE THIRD POLLUTION Stuart Finley		1971	23 minutes	color		\$225
Comprehensive film on solid waste problems and solutions.						
2 TIME FOR MAN Ealing		1971	50 minutes	color		
Provocative and ambitious film produced by the American Museum of Natural History, which provides a vignette of man's position in the environment. Life styles of animals and humans are examined and the question is introduced: Can man learn to live with nature or is he frozen into a way of life that can lead only to disaster?						
6 TOWN THAT WASHES ITS WATER Hearst	7-9	1971	15 minutes	color		
Reports on a pioneer reclamation program that is turning sewage water into valuable community asset.						
4 TURN OFF POLLUTION EBEC	K-3	1971	11 minutes	color		\$135
Group of children try to solve pollution problems in their neighborhood and schools.						
6 URBAN SPRAWL Barr		1969	15 minutes	color		
Describes characteristic pattern of recent urban growth and discusses problems created by urban sprawl, necessity for planning future development and factors that must be considered to make the best use of our land.						

RESOURCES

16 MM Film

SOCIAL SCIENCES

Concept Title Level Dist.	Grade Level	Year Released	Length	Color	Cost Rent	Cost Purchase
2 VENEZUELA Films, Inc.	4-6	1970	14 minutes	color		
Discusses Venezuela today as an extreme contrast between rich and poor. Depicts the struggle to nationalize the oil industry and shows the development of a varied industrial structure which has created more jobs and better living standards. (cat.#1567)						
6 WATER POLLUTION - CAN WE KEEP OUR WATER CLEAN? Journal Films	4-9	1971	16 minutes	color		
Shows six major sources of pollution and the ways in which each contributes to the contamination of our waterways. Includes examples such as trash and garbage from individuals; fertilizers, chemicals and manure from farms; waste and oil from boats; industrial wastes and detergent effluents from factories; thermal pollution from nuclear plants and city sewage. (cat.#1634)						
6 WATER PURIFICATION Aims	K-6		8 minutes	color		\$115
Introduction to the study of our most vital resource, water, and the process of purifying it for our use in the community. Simple demonstrations explain purification. Useful for conservation, science and social studies.						
6 WHAT ON EARTH McGraw-Hill	5 up	1971	10 minutes	color		\$145
Describes what a visitor from another planet saw as he hovered close to the Earth in an entertaining satire on modern technology. Mistaking the automobile as the Earth's form of intelligent life, the report states, the "earthling" is highly educated, retires for the night, and continually reproduced by mechanical means. What was observed was a car passing hundreds of road signs, parking in a garage overnight and being manufactured in a factory. Human beings are misconstrued as parasites living off the automobile, building large nests, cities.						
4 WHO OWNS THE BOTTOM OF THE OCEAN Doubleday	7-9	1968	15 minutes	color		
Studies the progress in surveying and mining the resources of the ocean, explores present knowledge about the continental shelves and adjacent waters in terms of the potential conflicts in international maritime law. (cat.#1035)						
4 THE WORLD IS A BANK BFA	K-9	1971	10 minutes			\$7.50
Explores ways we can safeguard our wealth of natural resources.						

RESOURCES

16 MM Film

SOCIAL SCIENCES

Concept Title
Level Dist.Grade
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5 WHICH IS MY WORLD

BFA

4-9

1971

9 minutes

color

Shows how greed is a major cause of environmental pollution. Tells how our demand for new things leads us to discard still usable items which lie in mounds that scar our environment. Explores the decisions and changes that may be necessary for our safe and pleasant survival.

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RESOURCES

Filmstrips

SOCIAL SCIENCES

Concept
Level

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2 AGRADATION-DEGRADATION

Eye Gate House	10 sound filmstrips	8-14	disc \$85.00
Atlantic coastal plain, Appalachian Highland, Mississippi River System, Rocky Mountain, Pacific Coast, Nigeria.		1971	cass \$87.50

6 AIR POLLUTION

Warren Schloat	2 sound filmstrips	6-12	disc \$40.00
Sources of Air Pollution and Biological and Economic effects of Pollution.		1971	cass \$46.00

6 AMERICA'S URBAN CRISIS

Singer/SVE	6 sound filmstrips	4-8	disc \$51.50
The Roots of Our Urban Problems, The Air Pollution Menace, Water Pollution - A Complex Problem, Solid Waste - A New Pollutant, The Transportation Crisis, The Housing Crisis. Survey background, causes and possible solutions of current environmental problems. Artwork and charts supplement color photographs shot in six major United States cities. Recorded narration includes problem oriented segments to stimulate discussion.		1970	cass \$57.50

5 THE BEAR CAN BY THE HIGHWAY

Warren Schloat	sound filmstrip	6-12	disc \$23.00
Explores the psychology and economics of the throw-away culture and the problem of conspicuous waste.		1971	cass \$26.00

6 CITIES, U.S.A.

Guidance Associates	2 sound filmstrips		disc \$18.00
Students trace historic development of cities from early civilization through the present era of huge megalopolis in the United States. Government experts explain steps now being taken to solve the problems of urban living. Students examine key urban programs such as public housing demonstration cities, urban living experiments, presentation of case histories help students understand the urgency of problems their generation will be faced with solving.			cass \$20.00

3 CONSERVATION FOR BEGINNERS

SVE	6 captioned filmstrips	K-2	\$27.00
Sonny Squirrel and the Pine Trees, The Deer and the Haystack, A Picnic for Dick and His Friends, The Lamb and the Bluebells, Susan and the Forest Fire, The Muddy Raindrops. Lifelike situations involving animals and children demonstrate the value of good conservation practices and dangers of carelessness.			

RESOURCES

Filmstrips

SOCIAL SCIENCES

Concept
Level

- | | | | |
|---|--|-----------------------|---------|
| 3 | <p>CONSERVATION FOR TODAY'S AMERICA</p> <p>SVD 7 sound filmstrips</p> <p>Soil Conservation Today, Forest Conservation Today, Water Conservation Today, Wildlife Conservation Today, Mineral Conservation Today, Urban Conservation Today, Land Conservation Today. Up-to-date analysis of the importance of conservation of natural resources. Explains causes and offers some possible solutions.</p> | 6-9 (teachers guides) | \$49.00 |
| 3 | <p>DESERTS</p> <p>Aims 6 filmstrips</p> <p>Geographical distribution, geology, ecology, adaptation, plants, animals.</p> | color | \$45.00 |
| 6 | <p>ECOLOGY</p> <p>Argus 1 sound filmstrip</p> <p>Visuals, music and sound present the condition of our planet and show that the earth's future is in man's hands.</p> | 9-12 color | \$17.50 |
| 4 | <p>ECOLOGICAL ECONOMICS</p> <p>Douleday Multimedia 2 sound filmstrips</p> <p>Man Disturbs the World of Life: Pollution and How It Hurts Us; Ecology: The Science of Good Earth Keeping.</p> | 5-7 | 1971 |
| 4 | <p>THE ECONOMY VERSUS ECOLOGY</p> <p>Teaching Resources</p> <p>Examines some environmental choices Americans face -- will ecological reform be slowed if jobs are threatened in a tight economy? Why are many industries dragging their feet? How is today's financial squeeze affecting anti-pollution activities? What are the real options open to us?</p> | color | 1972 |
| 4 | <p>ELEMENTARY ECONOMICS</p> <p>BFA 12 filmstrips</p> <p>Emphasis is on economic decision making -- values and choices -- but also includes problem solving behavior.</p> | K-9 | 1971 |
| | <p>THE EMBATTLED METROPOLIS</p> <p>Teaching Resources</p> <p>Full-scale study of problems confronting today's metropolitan areas.</p> | 7-12 color | |

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RESOURCES

Filmstrips

SOCIAL SCIENCES

Concept
level

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5

ENVIRONMENT: CHANGING MAN'S VALUES

Guidance Associates 2 sound filmstrips

1970

disc \$35.00
cass \$39.00

Points out that people must change personal and social priorities to create an environment in which they will be able to survive. The Enemy is Us, Remaking the Patterns.

6

ENVIRONMENT IN CRISIS

Teaching Resources

4-8

1971

\$38.75

2 color filmstrips; 6 black and white study prints, 15" x 22"; 36 ringman scales; 1 black and white wall calendar, 3" x 4.5"; 35 student handbooks; 1 teacher's guide. Incorporates the latest learning strategies -- simulation, role playing puzzles, games, letter writing, media monitoring, observation, group action.

6

ENVIRONMENT OF MAN

AVI

10 filmstrips 2 sets

\$59.00

Set I. Ecology and Environment: Is there life on Earth?, The Ocean of Air, Water - Clear and Otherwise, Of Food and Land, Energy Applied. Set II. Man and Nature: Population, the Numbers Game; Concrete Habitat; The Busy-Body: Unthinking Man; Man - The Builder.

4

ENVIRONMENTAL CRISIS - What the Individual Can Do

National Education Association

1971

\$15.00

Intended to inspire upper elementary to college level students and the public to action by suggesting specific changes in personal lives and in local communities. Areas explored include community action groups, returnable containers, low-phosphate content detergents, mass transit, lead-free gasoline, a possible return to a simpler life, and a greater respect for nature.

4

ENVIRONMENTAL DECISIONS: AN INQUIRY

BFA

5 filmstrips

1971

\$40.00

In each of these inquiry-oriented filmstrips students are asked to consider major ecological problems. Information is presented in such a way as to encourage students to consider alternative solutions to the problem. No conclusions are declared right or wrong.

4

ENVIRONMENTAL MATHEMATICS

BFA

6 filmstrips

4-9

1971

Addition and subtraction, Taxes: Terms and Sets, Waste Disposal; Graphing, Governmental Processes; Mean, Median, and Mode, Determining Public Opinion; Multiplication and Division, Environmental Planning; Problem Solving Techniques, Population Control. Solutions to some social and ecological problems through use of mathematics.

RESOURCES

Filmstrips

SOCIAL SCIENCES

Concept
level

- 6 ENVIRONMENTAL POLLUTION
Ward's Natural Science Establishment 6 filmstrips
Nature of Crisis; Atmospheric Pollution; Land Pollution; Freshwater Pollution; Marine Pollution;
Pollution Control
Available for
loan from Sierra Club
- 5 ENVIRONMENTAL VALUE CONFLICT: A CASE STUDY
Warren Schloat 2 filmstrips
An aluminum plant in Montana emits fluoride gas which kills or injures 10,000 acres of plant life in
the Flathead National Forest and drifts into Glacier National Park resulting in damage to wildlife,
trees, and other vegetation.
6 up
1971
disc \$40.00
cass \$46.00
- 3 FOREST AND FOREST PRODUCTS
BFA 5 filmstrips
Redwood Lumber Industry, the Lumber Mill; Redwood Lumber Industry, the Planing Mill; Plywood Industry;
Paper Industry, Trees in the Forest; Paper Industry, the Paper Mill. Today's trees are grown on tree
farms. This series shows lumber industry from planting of trees to end products.
4-9
1971
\$35.00
- 6 THE GREEN REVOLUTION
New York Times filmstrips
Presents problem of exploding world population and food to feed it. Questions whether the numerous
advances in agricultural research made in recent years have been great enough to adequately feed the
starving.
7-9
b&w
1971
- 3 THE LAST FREE BIRD
Weston Woods sound filmstrips
Beautiful, soft watercolors, a mysterious echolike quality of the narration and an atonal score are
effectively combined in this ecological message which shows what happens to birds when people invade
their environment.
K-3
color
1971
\$9.25
- 2 MAN IN HIS ENVIRONMENT
Imperial 2 sound filmstrips
Shows the different ways of life in two South American Villages, one a village high in the Peruvian
Andes and the other a primitive village on a tributary of the Amazon.
4-8
1971
disc \$22.00
cass \$25.90
- 2 LIVING ENVIRONMENT (Man and the Cities Series)
BFA
A City Is Different Life Styles; City Moods; Two Urban Centers
4-12
color
1971

RESOURCES

Filmstrips

SOCIAL SCIENCES

Concept
level

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5 ECONOMICS OF THE CITY

WFA

The Life Cycle of The City; Economics of Change, Westwood Village; A City Needs Goods, A City Needs Services; Specialization and Mass Production; Cities Are Run by People.

6 CITY PROBLEMS AND ALTERNATIVES

BFA

6 filmstrips

4-12

1971

Transportation in the City; Urban Ghettos, Isolation and Unemployment; Pollution, Part I, The Cities' Air; Pollution, Part II, Water and Garbage; Planning Our Cities; A New Town

2 MAN CHANGES HIS WORLD: Parts I and II

Warren Schloat

2 filmstrips

6 up

color

1971

disc \$40.00
cass \$46.00

Tells the story of man's struggle to master his environment from the stone age when he asserted his intelligence to survive and then his toolmaking, evolution of hunting techniques, effects of the Ice Age, and technology.

1-6 MAN'S EARTH HOME

EBEC

8 filmstrips

3-6

color

1971

\$57.60

The Earth and Its Seasons; The Face of the Earth; Climates of the Earth; When Man Lives; Regions of the Earth; Different Ways of Using the Earth; Changing the Face of the Earth. Captions of illustrative diagrams and photographs study climate and geographic features of the earth and their influence on man's way of life. The theme throughout is man's interdependence with the earth and the wide variety of life styles that geographic factors have determined and man has evolved throughout the world.

6 MAN'S NATURAL ENVIRONMENT: CRISIS THROUGH ABUSE

Guidance Associates

2 sound filmstrips

9-12

1971

disc \$35.00
cass \$39.00

Students review the ugly and tragic death of Lake Erie, the Santa Barbara Oil Disaster and other current problems to document the potentially devastating impact of air, water, and noise pollution of the United States.

6 THE PEOPLE PROBLEM

Guidance Associates

2 sound filmstrips

9-12

1969

disc \$35.00
cass \$39.00

Part I explores reasons for the population explosion and all the effects it has had. Part II examines methods for controlling population growth. Students see efforts to develop fish-based foods and miracle grain crops and consider the work of the United Nations in this area.

RESOURCES

Filmstrips

SOCIAL SCIENCES

Concept
level

- 6 OUR POLLUTED WORLD: THE PRICE OF PROGRESS
Current Affairs 1 filmstrip
Explores the question whether progress is worth the price we are paying and if we can have progress and clean environment too.

7 up
1971
disc \$15.00
cass \$17.00

6 POLLUTION

Coronet 6 filmstrips

What Is It; Our Air; Our Water; Solid Wastes; Pesticides and Radioactive Wastes; What We Can Do.
Problems in preserving our environment and how we can individually and collectively control and face them.

7-8
1971
disc \$70.00

4 THE REGULATORY AGENCIES: A FOURTH BRANCH OF GOVERNMENT

Guidance Associates 2 sound filmstrips

6-12

1971

disc \$35.00
cass \$39.00

Explores social, political, and economic conditions which precipitated the creation of regulatory agencies for U.S. business and industry. Fast-paced narration, good script, historic photographs, vivid period illustrations, and informal shots of current activities, quotes from prominent names in U.S. History, and dramatic background music add up to a superior set.

5 THE SEVENTIES: A DECADE FOR DECISION

New York Times filmstrips

9-12

b&w

1970

\$9.00

Wide-ranging presentation of challenging questions about the quality of life in the 1970's -- How will technological advances positively affect our social, political, economic, and moral structures in this decade? What choices will we as citizens have for improving the quality of life in the society of the 70's? One expert suggests that unless we stop worship of economic growth for its own sake and pay more attention to the quality of life around us, we face continued decay in our cities, and spoliation of our environment.

6 SOIL POLLUTION: Parts I and II

Warren Schloat 2 sound filmstrips

6-12

1971

disc \$40.00
cass \$46.00

Shows how environment is created, how it can be damaged, and how soil can become polluted by misuse of watersheds; On-site instances of actual condition.

2 THE STONE AGE

BFA

4 sound filmstrips

4-12

disc \$48.00

Man the Toolmaker; Big Game Hunters; The Magic Caves; Man Before Agriculture
Follows man from his existence as an early fabricator of crude tools to the development of fairly complex weapons for the hunt. Students begin to understand how the archaeologist is able to obtain information concerning early man's material existence, his beliefs, attitudes, and fears.

RESOURCES

Filmstrips

SOCIAL SCIENCES

Concept
level

5 TOPICS IN ECOLOGY

Multi-Media Productions 5 sound filmstrips 8-12 disc \$49.75
What is Ecology; What is Pollution; What is Air Pollution; The Automobile Beyond Air Pollution;
Prosperity - Pollution. Gets at man's attitudes and value priorities which have caused today's
ecological disasters. Photography is contemporary and realistic and narration poses questions for
class discussion.

6 WATER POLLUTION - Parts I and II

Warren Schloat 2 sound filmstrips 6-12 1970 disc \$40.00
Causes and effects of man's pollution --- by pesticides, phosphates, oil, sewage, industrial waste,
etc. cass \$46.00

5 YOUR TAX DOLLAR

New York Times sound filmstrip 9-14 b&w 1971 disc \$9.00
Explains local and federal systems of taxation in the United States --- history, how money is col-
lected, how it is spent. Crisp, journalistic narration, clear photographs, charts drawings.

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RESOURCES

SCIENCE

Books - Juvenile

Concept Level				
5	Anderson, Alan H. <u>The Drifting Continents</u> Putnam Information on continental drift theory.	1971	192 p.	7 & up \$4.29
4	Armour, Richard <u>Who's in Holes?</u> McGraw Hill A zoology lesson camouflaged in fun-filled Armour verse.			
1	Asimov, Isaac <u>The Best New Thing</u> World Two children who have lived all their lives on a small world far out in space learn about such things as gravity, blue sky, and green grass.	1971	28 p.	5-8 4.95
2	Austin, Elizabeth S. and Oliver L. <u>The Random House Book of Birds</u> Random House Describes the habits and habitats of birds from all over the world.	1971	131 p.	5 & up 4.95
4	Baker, Laura Nelson <u>From Whales to Snails</u> Atheneum Discusses mammals, reptiles, amphibians, fishes, birds, insects, arachnids, mollusks, and lower animals.	1971	150 p.	4-8 4.95
1	Balestrino, Philip <u>Hot as an Ice Cube</u> Crowell Basic information about heat and cold is presented in picture-book format.	1971	33 p.	5-8 3.75
2	Behnke, Frances <u>What We Find When We Look Under Rocks</u> <u>What We Find When We Look Series</u> McGraw-Hill Many fascinating creatures, and right in your own backyard or park.	1971	4-8	3.83
2	Bendick, Jeanne <u>Adaptation</u> Franklin Watts A book on the hows and whys of plant and animal adaptation.	1971	72 p.	4-6 3.95

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- 1 Bloome, Enid The Water We Drink 1971 48 p. 5-8 4.95
Doubleday
Describes some of the ways in which water becomes polluted, and gives some simple suggestions on things that adults and children can do to help combat water pollution.
- 1 Branley, Franklyn Mansfield Oxygen Keeps You Alive 1971 33 p. 5-8 2.75
Crowell
The importance of oxygen to man, animals, and plants.
- 5 Burningham, John Seasons 1971 Preschool-1 5.95
Bobbs
Follows the cycle of the seasons from spring with birds nesting and ducks dabbling, through summer, autumn, winter, until it is spring again.
- 5 Cartwright, Sally The Tide 1971 1-4 3.49
Coward
The concept of tidal movement is presented.
- 4 Case, Marshal T. Look What I Found! 1971 95 p. 4-6 4.95
Viking
Stresses the idea of keeping wild animals as short-term pets for observation and nature study.
- 2 Clemens, Elizabeth The Seven Seas 1971 11-14 4.95
Knopf
Portraits of the ecology and history of seven of the earth's major seas and some of the minor ones.
- 5 Cohen, Daniel Night Animals 1971 95 p. 4-6 3.95
Messner
Offers many answers to many questions about animals that come out at night, animals that we rarely see except in zoos.
- 4 Cole, Joanna Cockroaches 1971 62 p. 2-4 3.75
Morrow
Describes the origins of the cockroach, discusses the German and Oriental species and their general life cycle.
- 1 DeWard, E. John The Color of Life 1971 63 p. 4-6 4.95
Doubleday
Story of how plants and animals use color to survive and function.

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- 1 Freedman, Russell Animal Architects 1971 126 p. 4-6 3.95
Holiday
Why animals build nests and shelters and how they know what type to build.
- 4 Freedman, Russell, and James E. Morris Animal Instincts 1971 159 p. 5-9 4.95
Holiday
Explains the use of the word "instinct" and describes scientific investigations of innate behavior patterns.
- 2 Freschet, Berniece Turtle Pond 1971 unpagged K-3 5.50
Scribners
Picture book about pond life that centers on a turtle and her eggs.
- 4 Frith, Michael Some of Us Walk, Some Fly, Some Swim 1971 K-3 2.95
Random
Concepts of large, small, fast, and tall are well communicated by the brightly colored but authentically shaped animals.
- 1 Froman, Robert Hot and Cold and In Between 1971 45 p. 2-4 3.50
Norton-Crossett
Introduces the idea that heat flows from a warmer object to a cooler one.
- 2 George, Jean Craighead All Upon a Stone 1971 unpagged 2 3.95
Crowell
Story depicting the adventure of a mole cricket searching for its own kind.
- 4 Gilbert, Bil The Weasels: A Sensible Look at a Family of Predators 1971 6-7 4.95
Pantheon
Surveys the natural history of this family of animals which includes minks, ferrets, martens, fishers, otters, skunks, badgers, wolverines, and weasels.
- 2 Gorvett, Jean Life in Ponds 1971 31 p. 4-7 3.95
Heritage Press
Describes the plants that commonly grow in ponds and tells of the animals that are most frequently found as pond dwellers.
- 5 Greene, Carla Before the Dinosaurs 1971 80 p. 3-5 4.00
Bobs
Book is organized around the six periods of the Paleozoic Era.

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- 2 Halacy, D. S. Habitat
Macrae Smith 1971 186 p. 7-9 4.95
Describes the ecosphere--the earth and the forces that affect it.
- 6 Hellman, Harold Biology in the World of the Future
Evans 1971 188 p. 7-9 4.95
Introductory survey of biological research and the application of new techniques.
- 4 Hess, Lillo The Praying Mantis, Insect Cannibal
Scribner 1971 47 p. 3-6 4.95
Life history of the cannibalistic praying mantis is described.
- 3 Hoke, John Ecology
Franklin Watts 1971 96 p. 4-6 3.75
Introduction to ecology, emphasizing the role man has played in creating the environmental chaos that exists worldwide today.
- 4 Hutchins, Ross E. Scaly Wings: A Book About Moths and Their Caterpillars
Parents Magazine Press 1971 64 p. 2-4 3.47
Explanation of the differences between moths and butterflies and a discussion of the life cycle of moths.
- 5 Iger, Eve Marie Weather on the Move
Young Scott 1971 72 p. 6-9 4.25
Description of weather patterns and weather control, weather satellites and how they influence our routine happenings.
- 6 Kaufmann, John Robins Fly North; Robins Fly South
Crowell 1971 3.95
About the life cycle of robins, with information on why they migrate south for the winter and north in the spring to raise families--in relation to the environment.
- 5 Kaufmann, John Winds and Weather
Morrow 1971 8-12 3.75
Introduction to meteorology.
- 3 Knight Examining Your Environment: A Program in Environmental Studies
Mine Publications 1971 3.39
Includes Pollution; Trees; Running Water (2.88); Snow and Ice; Mini-Climates; Birds.
In preparation--Small Creatures; Mapping Small Places; The Dandelion; Astronomy; Ecology;
Your Senses.

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RESOURCES

Books - Juvenile

SCIENCE

- 5 Ladyman, Phyllis Inside the Earth
Scott
Presents an account of the causes of earthquakes, volcanoes, geysers, and other geophysical phenomena.
1971 32 p. 3-7 2.95
- 4 Lavine, Sigmund A. Wonders of the Owl World
Dodd
Rounds up fascinating bits of information on beliefs and superstitions about the owl through the ages, discusses the owl in literature and art, and describes its physical characteristics and habits.
1971 64 p. 5-8 3.95
- 1 Laycock, George Animal Movers: A Collection of Ecological Surprises
Doubleday/Natural History
Tells how many nice animals taken from their home country and bred someplace else turned out to be pests.
1971 107p. to age 14 4.50
- 2 Lubell, Winifred and Cecil Birds in the Street: The City Pigeon Book
Parents Magazine Press
Describes the physical characteristics and habits of pigeons, their place in history, and enumerates some of the measures which have been tried in cities all over the world to get rid of them or limit their population growth.
1971 64 p. 1-3 3.47
- 4 McClung, Robert M. Bees, Wasps, and Hornets and How They Live
Morrow
Explores the differences and similarities among members of the order of membrane-winged insects, with special emphasis on the honey-bee.
1971 8-12 3.95
- 5 Matthews, William Henry The Earth's Crust
Watts
Gives a concise introduction to the composition and characteristics of the earth's crust.
1971 92 p. 4-6 3.75
- 2 May, Julian The Land Beneath the Sea
Holiday
Presents a wealth of information to beginners about the bottom of the ocean.
1971 3-4 4.25
- 1 Millard, Reed, and Others Clean Air--Clean Water for Tomorrow's World
Messner
Discussion of sources of air pollution and what can be done about it.
1971 190 p. 6-9 4.50
- 2 Mline, Lorus Johnson and Margery Joan The Cougar Doesn't Live Here Any More
Prentice-Hall
Traces evolution of wildlife and man's contribution to its downfall.
1971 258 p. 9.95

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RESOURCES

Books - Juvenile

SCIENCE

- 4 Nespojohn, Katherine Worms 1972 72 p. 4-6 3.75
Franklin Watts
There are big worms and small worms that live below you, above you, beside you, and even in you. Each kind of worm has its own special way of life.
- 2 Parnall, Peter The Mountain 1971 32 p. 4-8 3.95
Doubleday
Describes what happens to a particular mountain where flowers bloom and animals live when people who love the mountain and want to keep it the way it is make it into a national park.
- 4 Perry, John Zoos 1971 96 p. 4-6 3.75
Franklin Watts
Answers to questions: Where does a zoo get its animals? Who looks after their health? Who decides what to feed them? How do scientists help zoos and how do zoos help scientists?
- 4 Piltz, Albert, and Roger Van Bever Time Without Clocks: How Nature Tells Time
Grosset
Authors consider how organisms lacking clocks are able to measure various time intervals so accurately.
- 1 Poling, James Leaves: Their Amazing Lives and Strange Behavior 1971 114 p. 6-9 4.95
Holt
An examination of the physical characteristics and functions of leaves.
- 5 Ross, Frank Xavier Storms and Man 1971 191 p. 7 & up 4.95
Lothrop
Discusses hurricanes and cyclones, tornadoes, thunderstorms, and snowstorms.
- 1-5 Rothman, Joel At Last to the Ocean: The Story of the Endless Cycle of Water 1971 34 p. K-3 3.95
Crowell-Collier
Traces the never-ending natural cycle of water from cloud to rain to stream to river to ocean.
- 2-4 Russell, Helen Ross Winter Search Party: A Guide to Insects and Other Invertebrates
Nelson
Guide to locating, identifying, collecting, housing, and observing insects and other small invertebrates during the winter months.

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RESOURCES

Books - Juvenile

SCIENCE

- 1 Schlichting, Harold E. Jr., and Mary Southworth Schlichting Algae
Steck-Vaughn 5-6 2.21
Not only do algae provide most of the world's oxygen, but also they are among the basic food-producers for all animals and are found living almost anywhere.
- 3 Schlichting, Harold E. J., and Mary Southworth Schlichting Ecology--The Study of Environment
Steck-Vaughn 5-7 2.21
This book will help young readers gain an understanding of environment and the ways plants and animals maintain themselves.
- Shaw, Evelyn Octopus
Harper 1971 K 2.50
A sequential account of the life-cycle of the octopus vulgaris.
- Shuttlesworth, Dorothy Animal Camouflage
Doubleday/Natural History 64 p. to age 14 3.95
Animal camouflage is described and illustrated, including mimicry, countershading, masking, disruptive coloration.
- 2 Silverberg, Robert Clocks for the Ages: How Scientists Date the Past
Macmillan 1971 238 p. 7-12 5.95
Some of the methods used by scientists to determine the age of the earth and that of artifacts and relics from the past are explored.
- 2 Silverstein, Alvin and Virginia Mammals of the Sea
Golden Gate 1971 90 p. 4-8 4.95
Discusses the various mammals that live in ocean waters.
- 1-6 Simak, Clifford D. The March of Science
Harper 1971 366 p. 7.95
Thirty-seven short, topically arranged articles by scientists and science writers for classroom use.
- 4 Simon, Hilda Living Lanterns: Luminescence in Animals
Viking 1971 128 p. 7-12 4.95
Bioluminescence, from fireflies to flightless land animals and underwater life is explored.
- 2 Stephens, William Life in the Open Sea
McGraw-Hill 1971 4.33
The story and ecology of very specialized creatures and their dependence upon one another.

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- 3 Tunis, Edwin Chimpanzees on the Doorstep 1971 69 p. 4-7 4.95
Crowell
Describes the adaptation of chimpanzees to their environment, their relationships with other animals, life cycles, habitats and homes and their individual personalities.
- 2 Tyler, Margaret Deserts 1971 46 p. 3-6 2.97
Day
Covers the major deserts of Australia, America, and Africa, and shows both the variety of desert life and the basic problems facing all desert dwellers.
- 1-6 Watson, Geoffrey Fun with Ecology 1971 54 p. 5-9 2.95
Winchester Press
How to record field observations, measure distribution of plants and animals, study tracks and food trails, construct blinds.
- 1 Weart, Spencer How to Build a Sun 1971 96 p. 6-10 4.29
Crowd
Tells how to build a model describing the sun and discusses measurement of the sun plus its composition, energy-producing process, and age.
- 4-5 Wyler, Rose, and Gerald Ames Secrets in Stones 1971 64 p. 2-4 4.75
Four Winds
Introduction to the origin of various kinds of stone, describes the formation and composition of granite, limestone, and other common rocks, and tells briefly what fossils are and where to look for them.
- 5 Zappler, Lisbeth and Georg The World After the Dinosaurs: The Evolution of Mammals 1970 183 p. 7-9 4.95
Natura History Press
Detailed examination of the evolution of mammals from the first small mammals that appeared during the time of the dinosaurs to the forms living today.
- 1 Zim, Herbert S. Armored Animals 1971 64 p. 3-6 3.75
Morrow
Beginning with one-celled protozoa, the book describes the protective armor, and its efficacy, of various species of invertebrates, living and extinct.

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RESOURCES

Books - Adult

SCIENCE

- 1-4 Amos, William H. The Infinite River: A Biologist's Vision of the World of Water 1971 269 p. 6.96
Randor House
Describes a composite river system made up of several rivers of the northeastern United States.
- 2 Bakker, Elna S. An Island Called California: An Ecological Introduction to its Natural Communities 1971 375 p. 10.00
University of California
Describes the ecology of a section of Central California representative of the biological communities of the state's heartland.
- 6 Harbour, Ian G. Science and Secularity: The Ethics of Technology 1971 151 p. 4.95
Harper
Discusses the challenges of science to religion today.
- 2 Barlow, Elizabeth The Forests and Wetlands of New York City 1971 192 p. 8.95
Little
Ecology is a major concern these days and the predicament of New York is widely regarded as the worst in the nation, but the author recalls a time when this was not always so.
- 6 Benarde, Melvin A. The Chemicals We Eat 1971 208 p. 6.95
American Heritage
Claiming that our food supply has never been so good, the author lashes out at nonscientists who scare the public by writing about the dangers of chemicals in food.
- 6 Berland, Theodore The Fight for Quiet 1971 370 p. 8.95
Prentice-Hall
The dangers of noise fallout from modern technological society and the noise sources of modern life and the social and physical damage such as noise produces are examined.
- 6 Bodin, F. Poisons 1971 255 p. 2.45 pap. 4.95
McGraw
Useful for reference on topics as diverse as drug addiction, sources of poisons, environmental pollution, poisons in war, and the prevention and treatment of poisoning.
- 4 Bolton, Lee Color Under Ground: The Mineral Picture Book 1971 62 p. 6.95
Scribner
An introductory identification guide to mineral crystals.

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RESOURCES

Books - adult

SCIENCE

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- 4 Boorer, Michael Wild Cats
Grosset 1971 159 p. 3.95
Shows how felines evolved, how they behave in the wild; and how scientists have classified them into numerous distinct species.
- 6 Bragdon, Clifford R. Noise Pollution: The Unquiet Crisis
University of Pennsylvania Press 1971 14.00
Acoustical engineering and social science applied to a growing public menace which is the least understood, yet one of the most serious environmental hazards of modern society.
- 2 Breeden, Stanley and Kay Tropical Queensland (Natural History of Australia, I)
Taplinger 1971 262 p. 20.00
Covers the major bioclimatic areas of Australia.
- 3 Brainerd, John Nature Study for Conservation: A Handbook for Environmental Education
Macmillan 1971 352 p. 4.95
Emphasizes individual participation in studies of nature.
- 3 Brierley, J. K. Biology and the Social Crisis: A Social Biology for Everyman
Fairleigh Dickinson University Press 1971 260 p. 8.00
Discusses the many environmental and social problems facing man.
- 5 Briggs, Peter 200,000,000 Years Beneath the Sea
Holt 1971 228 p. 7.95
Describes drilling for core samples several thousand feet beneath the ocean floor.
The geologists went back millions of years in time and revealed data to support the continental drift theory.
- 4 Brown, Leslie Eagles The World of Animals
Arco 1971 96 p. 3.95
Describes the different species of eagles and discusses their characteristics, habits and behavior, and makes a plea for their conservation.
- 5 Brown, Martin, Ed. The Social Responsibility of the Scientist
Free Press 1971 282 p. 3.95 paper 7.95
Reprints 16 essays on such topics as government funding and science, chemical and biological warfare, food additives, and the ecological crisis.
- 6 Burnet, Sir Macfarlane Dominant Mammal
Tri-Ocean 1971 224 p. 10.50
Attempts to show how the accelerating processes of science and technology affect the human destiny.

- 4 Buyukmihci, Hope Sawyer Hour of the Beaver: Wild Life Conservation 1971 173 p. 5.95
Rand McNally
Describes the feeding, lodging, repair dam building, and care and training of young beavers.
- 4 Cahalane, Victor H. Alive in the Wild 1971 244 p. 9.95
Prentice-Hall
Accounts of personal experiences with wild animals by American and Canadian biologists and naturalists.
- 4 Callahan, Philip S. Insects and How They Function 1971 191 p. 4.95
Holiday House
Explains how the organs and bodies of insects are built, how their structures function, and how they sense the world they live in.
- 1 Carr, Donald E. The Deadly Feast of Life 1971 369 p. 7.95
Doubleday
Deals with the eating habits of creatures from the microscopic through the macroscopic level.
- Carson, Rachel The Rocky Coast 1971 118 p. 6.95
McCall
A little book for those who want to know more about the ebb and flow of life on a rocky New England shore.
- 4 Chauvin, Remy The World of Ants: A Science-Fiction Universe 1971 216 p. 5.95
Hill and Wang
Ant-human parallels get nearest when the author studies his insects in bourgeois contentment, full of their creature comforts.
- 1 Chedd, Graham Sound 1971 187 p. 5.95
Doubleday
About the nature of sound, speech, music and technology, acoustics, principles of underwater sound, biological and surgical applications of ultrasound measuring noise, occupational deafness, and noise control.
- 5 Cloud, Preston Adventures in Earth History 1971 992 p. 8.95 paper 17.50
Freeman
A collection of 83 papers which largely reflect the advances made by earth scientists within the twentieth century.

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- 3 Cohen, Daniel Watchers in the Wild: The New Science of Ethology
Little 1971 178 p. 5.95
Defines ethology as the study of how animals behave under natural conditions, the attempt to discover why they behave as they do, and the application of the resulting theories to the behavior of man.
- 3 Commoner, Barry The Closing Circle: Nature, Man and Technology
Knopf 1971 326 p. 6.95
Explains what ecology means. Describes the nature of the ecosphere and gives case histories of the poisoning of the air, of the earth, and of the water, and of our genetic inheritance.
- 5 Cornwall, Ian Ice Ages: Their Nature and Effects
Humanities Press 1971 180 p. 9.50
A resume of the physical effects of glaciers and of the intervening warmer times is followed by a history of the several glacial and interglacial stages and of their effects on plants, animals, and man.
- 4 Davis, Bette J. Mole from the Meadow
Lothrop 1971 64 p. 3.95
Discusses the virtues of the mole and the balance of nature.
- 3 Dewey, Edward R., and Og Mandino Cycles: The Greatest Mystery in the World
Hawthorn 1971 224 p. 6.95
Many events associated with biology, economics, and human relations are apparently repeated at regular intervals or in a cyclic fashion.
- 5 Dobzhansky, Theodosius Genetics of the Evolutionary Process
Columbia University Press 1971 505 p. 10.95
A new outline of the biological theory of evolution, with special emphasis on the genetic aspects.
- 4 Dossenbach, Hans D. The Family of Birds
McGraw-Hill 1971 192 p. 12.95
Describes courtship, mating habits, and nesting behavior of sea and land birds in different areas of the world.
- 4 Droscher, Vitus B. The Friendly Beast: Latest Discoveries in Animal Behavior
Dutton 1971 248 p. 8.95
Emphasizes the vertebrated and makes an attempt based on the examples presented, to compare animal and human behavior.

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RESOURCES

Books - adult

SCIENCE

- 5 Easley, Loren The Night Country 1971 240 p. 7.05
Scribner
Autobiographical tales of creatures in the night country.
- 2 Faulkner, Douglas The Hidden Sea 1971 148 p. 14.95
Viking
Following an introduction that defines life and chats about ecology of the sea, there are six surveys of the invertebrate phyla.
- 1 Frisch, Otto Von Animal Migration 1969 125 p. 4.95
McGraw
Migration patterns of animals, their trails, flyways, and waterways are scrutinized.
- 4 George, Jean Craighead Beastly Inventions: A Surprising Investigation into How Smart Animals Really Are 1971 216 p. 6.95
McKay
A compilation of many unusual facts about insects, birds, animals, and water-based creatures.
- 1 Gordon, Solon A., and Melvin J. Cohen (Editors) Gravity and the Organism 1971 480 p. 14.00
University of Chicago Press
Surveys the effects of gravitation on the properties and behavior of living matter.
- 4 Harrison, Hal H. The World of the Snake 1971 160 p. 5.95
Lippincott
Discusses a snake's physical characteristics, color, locomotion, size, and life span and delves into the subjects of poisonous and nonpoisonous reptiles, reproduction, and food.
- 2 Heezen, Bruce C., and Charles D. Hollister The Face of the Deep 1971 659 p. 25.00
Oxford
Describes the sunless abyss of the bottom of the oceans which claims over half of the surface of the planet.
- 6 Hellman, Hal Biology in the World of the Future 1971 188 p. 4.95
Evans
In a study of biological research, the author examines the accomplishments of today and their implications for the future.
- 2 Herring, Peter J., and Malcolm R. Clarke Deep Oceans 1971 336 p. 18.50
Praeger
Semitechnical oceanographic survey of the deep ocean.

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RESOURCES

Books - adult

SCIENCE

- 1 Hynes, H. B. N. The Ecology of Running Waters 1970 555 p. 25.00
University of Toronto
Survey of freshwater biology discusses physical characteristics of stream channels and flowing waters and includes brief chapters on attached algae, plankton, and higher plants.
- 2 Kelley, Donald Greame Edge of a Continent: The Pacific Coast from Alaska to Baja American West 1971 288 p. 13.95
A view of rivers, forests, and mountains from Alaskan ice caps to California deserts and some of the explorers and inhabitants of the Pacific Coast.
- 2 Ketchum, Richard M. The Secrets of the Forest 1971 108 p. 7.95
American Heritage
Introduction to the growth and life cycle of trees, their structure, forest life, forest regions, the practice of forestry, and the utilization of wood.
- 2 Kinne, Otto Marine Ecology: A Comprehensive, Integrated Treatise on Life in Oceans and Coastal Waters 1971 681 p. 34.50
Wiley
A review of what is known about marine ecology.
- 5 Kruger, Christoph, ed. Volcanoes 1971 168 p. 15.95
Putnam
Describes an awesome type of natural phenomenon in a collection of articles on historical, physical, and influential aspects of active and inactive volcanoes.
- 1 Kryter, Karl D. The Effects of Noise on Man 1971 633 p. 19.50
Academic Press
A discussion of terminology and definitions, measurement and evaluation of noise, auditory response, and nonauditory response of man, damage risk, and effects of noise on groups.
- 5 Ievason, David A Sense of the Earth 1971 176 p. 6.95
Natural History Press
Essays on the rewards and satisfactions of the study of geology, not only for the specialist on earth science, but for anyone seriously concerned with conservation of the natural environment.
- 3 McHale, John The Ecological Context 1971 188 p. 7.95
Braziller
Deals with the life support systems of the physical environment, energy and materials.

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RESOURCES

Books - adult

SCIENCE

- 4 McNulty, Faith Must They Die? 1971 86 p. 4.95
Doubleday
The story of the struggle to save the black-footed ferret who lives in close association with prairie dogs.
- 2-6 McPhee, John Encounters with the Archdruid 1971 245 p. 6.95
Farrar, Straus
Relates the "encounters" of three trips into wilderness areas--a mountain range, an island, and a river canyon.
- 4 Marshall, N. B. Explorations in the Life of Fishes 1971 204 p. 6.50
Harvard University Press
Deals with the convergent evolution of functional complexes such as those involved in buoyancy, locomotion, feeding, camouflage, reproduction, etc.
- 6 Marine, Gene, and Judith Van Allen Food Pollution: The Violation of our Inner Ecology 1972 385 p. 8.95
Holt
Describes the human body as a delicate ecosystem that has evolved over thousands of years in a precise relationship with its foods.
- 5 Matthews, William Henry Invitation to Geology: The Earth Through Time and Space 1971 148 p. 1.45 paper 4.95
Natural History Press
Seeks to provide the essentials of physical and historical geology and show the relation of Earth to the other astronomical bodies in the universe.
- 1-5 Milne, Iorus and Margery The Arena of Life: The Dynamics of Ecology 1971 352 p. 15.00
Doubleday/Natural History
Describes physical forces at work on our planet and examines the webs of life--ecological niches filled by plants and creatures that are challenged by their environment to survive.
- 5 Neher, G. Inadvertent Climate Modification: Report of the Study of Man's Impact on the Climate 1971 308 p. 2.95
MIT Press
Troposphere and stratosphere modifications through man's activities and suggested monitoring of upper troposphere and lower stratosphere are dealt with as is man's potential impact on global climate.
- 2 Newell, R. C. Biology of Intertidal Animals 1971 555 p. 23.75
Elsevier
Attempts to account for the distribution of intertidal animals in physiological terms, discusses the physical, chemical, and biological features of the intertidal zone.

RESOURCES

Books - adult

SCIENCE

- 6 Olsen, Jack Slaughter the Animals: Poison the Earth
Simon & Schuster 1971 287 p. 6.95
An indictment of current predator control practices in the United States.
- 4 Park, Ed The World of the Otter Living World Series
Lippincott 1972 159 p. 5.95
Records the seasonal daily life of otters, their physical characteristics, their environment, and their life cycle.
- 2 Perry, Richard The Unknown Ocean
Taplinger 1971 288 p. 7.95
Explores problems of illumination, communication, feeding, breeding, pressure, temperature, and defense common to the life of the ocean's abyss.
- 1 Platt, Rutherford Hayes Water: The Wonder of Life
Prentice-Hall 1971 274 p. 8.95
Traces its development and explains its characteristics, speculating on the origin of life in water, discussing the elements in the ocean which encourage life, and outlining the evolution of living things.
- 6 Plowden, David The Hand of Man on America
Smithsonian (Brazilier) 1971 75 p. 12.50
The author's impression of America's great past and his expression of concern for her dismal present.
- 4 Rood, Ronald Animals Nobody Loves
Stephen Green 1971 215 p. 6.95
Discusses the wolf, the coyote, the rat, the flea, the mosquito, the octopus, the bat, the snake, the spider, the vulture, the pig, and the eel. According to the author the real villains are not the animals but man himself.
- 1 Schroeder, Henry A. M. D. The Trace Elements Within Us
Devlin-Adair Co. 1972 192 p. 7.50
Discusses the trace elements, cobalt, chromium, manganese, copper, zinc, bromine, iodine, mercury, cadmium, selenium, and others and their roles in health and hygiene.
- 6 Schwartz, Eugene S. Overskill: The Decline of Technology in Modern Civilization
Quadrangle Books 1971 338 p. 8.95
Discusses the crises that threaten human survival inherent in science and technology and not amenable to rectification by more science and technology.

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- 6 Seaborg, Glenn T. and William R. Corliss Man and Atom: Building a New World Through Nuclear Technology 1971 411 p. 10.00
Optimistic but reasoned review of the benefits of the peaceful use of the atom.
- 6 Segerberg, Osborn Where Have All the Flowers, Fishes, Birds, Trees, Water, and Air Gone? McKay 1971 303 p. 6.95
Author believes that understanding the dangers inherent in man's misuse of the universe, man should be able to cope with the changes necessary for survival.
- 5 Shepard, Francis P. Our Changing Coastlines McGraw-Hill 1971 579 p. 39.50
Compilation of information, descriptions of various coastal landforms are included.
- 4 Simon, Hilda The Splendor of Iridescence: Structural Colors in the Animal World Dodd 1971 268 p. 25.00
A primer on those aspects of optics which result in the structural colors of living organisms.
- 2 Staender, Vivian Adventures with Arctic Wildlife Caxton 1970 260 p. 6.95
A study of the effects of pesticides on future generations of wildlife.
- 3 Steele, J. H., Ed. Marine Food Chains University of California Press 1971 552 p. 13.50
A series of insights into current ecological thinking regard the food web.
- 1 Street, Philip Animal Weapons Taplinger 1971 175 p. 7.95
Surveys the offensive and defensive methods adopted by species from all branches of the animal kingdom.
- Street, Philip Wildlife Preservation Regnery 1971 141 p. 5.95
Attempts to show why wildlife becomes rare or extinct, why this trend should be averted, and how success can be achieved.
- 2 Sutton, Ann and Myron The Wilderness World of the Grand Canyon: Leave It Like It Is Lipincott 1971 241 p. 8.95
Discusses the problems facing national parks in general and the Grand Canyon specifically.

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RESOURCES

Books - adult

SCIENCE

- 5 Taring, D. H., and M. P. Continental Drift: A Study of the Earth's Moving Surface Anchor: Doubleday 1971 120 p. 1,95 paper 4.95
Presents some evidence for continental drift, which has been accumulated as a result of the extensive research effort of the last several decades.
- 3 Thurman, Howard The Search for Common Ground: An Inquiry Into the Basics of Man's Experience of Community Harper 1971 128 p. 4.95
Explains how a mutual interdependence is characteristic of all life.
- 1 Todd, David Keith The Water Encyclopedia: A Compendium of Useful Information on Water Resources Water Information Center 1971 449 p. 27.50
Collected from many diverse resources, the materials provide answers to the most commonly asked questions about water.
- 5 Tucker, R. H., et al. Global Geophysics American Elsevier Pub. 1971 199 p. 7.00
An introduction to the study of the principal branches of earth sciences.
- 1 U. S. Department of the Interior River of Life--Water: The Environmental Challenge U. S. Govt. Printing Office 1971 96 p. 2.50
This is #6 in the Interior Department's series of conservation yearbooks.
- 4 Ward, Ritchie R. The Living Clocks Knopf 1971 416 p. 8.95
Presents a series of discussions concerning biological rhythms in the animal and plant kingdoms, with emphasis on man.
- 4 Wilson, Edward O. The Insect Societies Harvard University Press 1971 548 p. 20:00
Synthesis of knowledge of the social insects.

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RESOURCES

16 MM Films

SCIENCE

- 2 ADAPTATION TO OCEAN ENVIRONMENTS
BFA 1970 11 minutes color 4-9 \$150
Shows how animals live in many different kinds of places beneath the sea.
- 4 AMERICAN BALD EAGLE, THE
Coronet 1970 16 minutes color
Presents the life cycle of America's national bird, the bald eagle, which faces possible extinction.
- 6 AMERICAN WILDERNESS, THE
NBC News 1970-71 5 & up \$500
Unspoiled nature of wild areas described as in danger of being destroyed by our technological society.
- 2 ANIMAL ADAPTATIONS IN A NORTHERN ENVIRONMENT
BFA 1970 11 minutes color
Shows how animals in the arctic region of North America adapt to their environment.
- 4 ANIMALS HATCHED FROM EGGS
Coronet 1970 11 minutes color
Introduces the idea of reproduction in animals by showing that birds, reptiles, amphibians, fish, insects, and certain mammals hatch from eggs.
- 2 ANIMALS THAT LIVE IN WATER
Coronet 1970 11 minutes color
Explores ways in which animals are adapted for living in water.
- 3 BASIC ECOLOGY
Centron 1972 11-16 minutes color 1-9
Energy and Living Things \$14.50, rent \$14.50
Populations \$210, rent \$21
Explains how uncontrolled populations grow at geometric rate and explores some of the controls that normally tend to check animal and plant propagation.
- 2 BIG IS LITTLE, LITTLE IS BIG
Macmillan 1971 4½ minutes color 3 rent \$63.00
Earth is given its place in space and in the solar system. A series of views of the same animal shows that size is relative. 7.50

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RESOURCES

16 mm films

SCIENCE

- 4 CATERPILLARS GROW AND CHANGE
Coronet 1971 11 minutes color K-3 \$143
Transformation of caterpillars to winged insects.
- 2 CAVE ECOLOGY
Centron 1970 13 minutes color 4-12/adult \$175
Illustrates basic ecological principals through the study of a cave.
- 5 CHANGING FOREST, THE
BFA 1970 11 minutes color pri.intermed.
Describes how some forests change with the seasons, and as the seasons change the forest, animal life in the forest also changes.
- 5 CONTINENTS ADRIFT
American Economic Foundations 1970 15 minutes color
Follows the continental drift theory from its inception by Alfred Wegender in 1912 to its present world-wide acceptance.
- 6 CRY OF THE MARSH
Bill Snyder Films, Box 2784, Fargo, N. D. 58102 1970 12 minutes \$155
An urgent plea for reorganizing control of the environment.
- 6 DDT--KNOWING IT SURVIVES US
Steve Rosen-Darrel Saik Films 30 minutes color 7& up \$325
Assesses status of DDT today with respect to harmful effects it has on health and ecology.
- 5 DINOSAURS--THE AGE OF REPTILES
Treiberg 1970 18 minutes color
Tells of the age in which dinosaurs lived and describes where, how, terrain, climate, and factors leading to their extinction.
- 3 DROP OF WATER, A
ACI Films, Inc., 35 W. 45th St., New York 10036 1970 15 minutes color HS/College \$190
Superb cinemicrography explores the fine balance of nature of microorganisms in their habitat--a drop of water.

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- 1 DROP OF WATER, A
Barr Films
1971 14 minutes color \$170
Follows a drop of water as it falls into a forest glade, becomes part of a small creek, joins a river, and eventually reaches the sea to rise as a vapor and return to the forest once more.
- 2-3 ECOLOGICAL SYSTEMS 6 films
AIMS 1971 12-18 min. 7-12 \$160-200 ea.
The Aquatic Environment; The Desert Ecosystem; The Mountain Forest in the Sierra Nevada; The Intertidal Ecosystem; Mountain-Meadow Ecosystems; Living Things and Their Environment. Salient features of ecosystems described through ecological surveys done by teams of scientists and students. rent \$20 ea.
- 3 ECOLOGY--SAVING OUR NATURAL RESOURCES
NWRP 1970 10 minutes color pri./intermed.
Alerts students to the problems of pollution and points out ways they can help to improve environmental living conditions.
- 3 ECOSYSTEM: NETWORK OF LIFE
BFA 1971 color or b&w 6-12
Explores interactions between living things and between organisms and the physical elements in their environment.
- 5 EXTINCTION: A Lesson from the Past
Journal Films 1971 13 minutes color 4-12 rent \$15
Presents basic causes of extinction that occurred to animal species over the vast period of prehistoric life and relates that experience to the animals that remain today.
- 2 THE FLOODING RIVER: A STUDY OF RIVERINE ECOLOGY
Wiley 1971 34 minutes color 9-12 rent \$25
Provides a comprehensive survey of riverine ecology, through a study of the Connecticut River. \$400
- 3 FOOD CHAINS IN THE OCEAN
BFA 1971 color 4-12
See communities depend on green plants to make energy available for life.

- 4 FROGS: An Investigation
BFA 1971 13 minutes color 4-9 \$1
Shows how characteristics of the frog help it live both on land and in water.
- 4 GALAPAGOS: DARWIN'S WORLD WITH ITSELF
EBEC 1971 19 minutes color 6-12 \$232.50
Introduces the diversity of plant and animal life indigenous to the islands and shows the effects of man's encroachment upon the Archipelago.
- 2 GRASSLAND ECOLOGY--HABITATS AND CHANGE
Centron 1970 13 minutes color 4-9 \$175 guide
Provides a historical approach to the ecology of the American prairies.
- 5 HEARTBEAT OF A VOLCANO
EBEC 1970 21 minutes color 4-9
Shows the two-week buildup and awesome nine-hour eruption of Kilauea in Hawaii.
- 5 HOW LEVEL IS SEA LEVEL?
EBEC 1970 13 minutes color 7-9
Illustrates the constant changes created by waves and tides, and provides data for the investigation of the question: How level is sea level?
- 6 LAKES--AGING AND POLLUTION
Centron 1971 15 minutes color 5-10
Features underwater photography, photocinicrography, graphics, and other techniques to explain the aging process in lakes as they change from youth to middle age to old age and death.
- 6 LITTLE BLUEBIRD'S VALLEY, THE
Coronet 11 minutes color or b&w \$140 color, \$70 b&w
Conservation concepts introduced in an animated cartoon.
- 1 MECHANICS OF LIFE: Breathing and Respiration
BFA 1970 8 3/4 minutes color \$135
Noting the need of all living things for oxygen, simple models and colorful diagrams study the function and structure of lungs.
- 2 NATURE IN THE CITY
Journal 1971 13 minutes color K-6 \$155
Encourages children to explore the urban environment by showing the various plants and animals which have adapted to city life.

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RESOURCES

16 mm films

SCIENCE

4

NATURE'S CAMOUFLAGE

ACI

1970

13 minutes

color

\$160

Skilled cinematography and beautiful color reproduction bring the concept of camouflage to life.

1

OCEANS OF WATER, BUT NONE TO SPARE

AIMS

22 minutes

color

elem. to adult \$275

Featuring C. LeRoy French, underwater photographer, this film is built around a dialogue with his son as they spend a day walking along the beach.

ONE SPRING DAY

H/K Films

1970

9 minutes

color

A closeup view of nature at work. Visually and without narration, examines and explores insects and flowers on one spring day.

OUR ENDANGERED ENVIRONMENT--AIR

Environmental Films

1971

17 minutes

color

Discusses the composition and importance of air to our environment. Shows causes and effects of air pollution.

6

OUR LAND NEEDS YOUR HELP

Barr Films

1970

13 minutes

color

elem. \$160

Develops an awareness of our environmental problems and suggests ways in which the elementary student can become actively involved in solving pollution and waste of valuable resources.

2

OUR LIVING FOREST

AIMS

11 minutes

color

pri.& middle

\$130

The beauty of the forest wilderness is vividly portrayed, developing an appreciation and awareness of the reliance on the forest by man and animal.

5

OUR ROUND EARTH Series of 5 films

Coronet

1971

11 min. each

color

K-3

\$140 ea.

Includes What It's Like (earth's size, atmosphere, land and ocean features seen from ground, plane and spaceship); Its Atmosphere (importance of atmosphere to life under water and in space and scene of air pollution); Its Waters; Its Land; How It Changes.

6

OUR VANISHING WILDERNESS

Indiana Univ. Audio-Visual Center, Bloomington, Ind. 8 films

1970

30 min. each

Jr. Hi & up

\$314 ea.

See following page.

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6 OUR VANISHING WILDERNESS (cont.)

A detailed look at the critical relationship between man and his environment. Includes: The Chain of Life; Of Broccoli and Pelicans and Celery and Seals (pesticides discussed); The Prairie Killers (consequences of man's move into wildlands); Santa Barbara (oil); Slow Death of Desert Water (Nevada's Pyramid Lake); The Water Is So Clear That a Blind Man Could See (New Mexico's Toas Indians concern over nearby Blue Lake and the lumber companies); WILL THE GATOR GLADES SURVIVE? (Everglades).

6 PARADISE LOST

Benchmark 1971 4 minutes color K-3 \$85
Illustrates basic concept that pesticides destroy insect and birdlife, leaving a "Silent Spring."

1 PLANTS OBTAIN FOOD

Indiana University 15 minutes color upper elem., Jr. Hi rental \$5.65
Shows the variety of ways plants meet food requirements and illustrates the various phenomena and processes involved in manufacturing or acquiring food.

6 POISONED PLANET, THE

McGraw-Hill 1971 19 minutes \$260 w/guide
The evidence of chemical pollution from the widespread use of pesticides is examined in this documentary narrated by Jules Bergman. rent \$24

2 POND, THE

BFA color K-6
A community of living things growing in a pond changes as the pool changes with the seasons.

4 PRIVATE LIFE OF THE STARLING, THE

Time-Life Films, 43 W. 16th, N. Y. 1970 26 minutes HS & College \$250
Portrays life cycle of starlings from late March when the male bird selects a site, builds a nest, and attracts a mate, to the following spring when the male repeats these preparations.

4 ROCKS AND MINERALS: How We Identify Them

Coronet 1971 13½ minutes color and b&w color \$170
Shows how pattern, texture, and composition of rocks provide clues to their identity and formation, and some scientific tests of minerals they contain. b&w \$ 85

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RESOURCES

16 mm Films

SCIENCE

- 5 SAND: THE DESERT IN MOTION
BFA 1970 11 minutes \$135
Records the evolution of sand from granite rocks eroded by wind and water, its movement in sand dunes; and its function in carving, polishing, wearing away rock, and creating more sand.
- 2 SEA OTTER, THE
Grover 1971 18 minutes color
Beginning with an outline of the history of the sea otter, the film shows the environment in which sea otters live, how they use the kelp forest, and how their food gathering encourages the health growth of the giant kelp.
- 4 SEDIMENTARY ROCKS
Modern Learning Aids 1970 12 minutes color
Introduces the study of sedimentary rocks. Explains the system for classifying sedimentary rocks and describes sedimentation.
- 4 SEED DISPERSAL
EBEC 1971 11 minutes color \$135
Illustrates through time-lapse photography, the life cycles and propagation techniques of many natural plants.
- 4 SEEDS: How They Germinate
Coronet 1971 11 minutes color 4-6 \$140
Shows seed dispersal system and structure and stages in growth of an embryo.
- 6 SLOW GUILLOTINE: Parts I and II
NBC Educational Enterprises 1970 53 minutes color
Narrated by Jack Lemmon, this film explains that today ecologists warn that if no corrective action is taken, most of our urban centers will be unlivable before the year 2000.
- 2 SPRING MARSH
A-V Explorations, 505 Delaware Ave., Buffalo, N. Y. 14202 1971 26 minutes color \$300
Shows a photographer and his wife paddling a canoe and taking photos in a marsh, photographs which are among the best ever taken of wildlife. rent \$ 25

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RESOURCES

16 mm Films

SCIENCE

- 3 STRENGTH OF PLANTS
Contemporary/McGraw-Hill 1971 12 minutes color 7-14 rent \$205 \$ 20
Shows vitality of germinating plant seeds. Includes experiments.
- 1 SUN--FRIEND OR FOE?
AIMS 11 minutes color pri., Jr. Hi \$130
The sun and basic concepts about it are presented, with emphasis on the positive and negative aspects of its influence upon life on our earth and our daily lives.
- 1 SUNLIGHT
BFA 1971 9 minutes 1-6 \$135
An excellent technical production that explores the need of all life for sunlight.
- 4 SURVIVAL IN THE ANIMAL WORLD
Journal Films 1971 11 minutes color 4-12 rent \$135 \$ 10
How varied species have developed physical traits and instincts that help them to survive.
- 3 SYMBIOSIS
BFA 1971 color 7-14
Shows organisms that live together in mutual dependence.
- 2 TWO DESERTS: SAHARA AND SONORA
Learning Corporation of America, 711 Fifth Ave., N. Y. 10022 1971 16 minutes w/guide \$220
Compares and contrasts the Sahara Desert in Africa with the Sonora Desert in California.
- 2 WARM-BLOODED AND COLD-BLOODED ANIMALS
Coronet 1971 13½ minutes color and b&w color \$170 b&w \$ 85
Experiments show how environment affects temperature of cold-blooded animals and how body coverings help warm-blooded animals keep a more constant temperature.
- 1 WATER--COMING AND GOING
Prism Enterprises 1970 20 minutes 4-7 \$230
Demonstrates evaporation, condensation, and precipitation of water.
- 1 WATER SAYS, THE
Churchill 1971 11 minutes color available to rent \$130
Shows clouds creeping up the wooded slopes to release their drops; then gathering, the water begins a race to the sea.

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SCIENCE

EBEC	1971	13 minutes	color	\$167.50
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Coronet	1971	11 min.	color and b&w	b&w	\$ 70
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BFA	1970	10 3/4 minutes	2-6	\$140
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Centron	1971	15½ minutes	color	4-9	\$210
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Barr Films	1971	11 minutes	color	\$135
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BFA	1971	10 3/4 minutes	6-10	\$145
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EBEC	1971	9 minutes	color	1-4
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Designed to encourage children to use their senses and become involved in investigating the life around them. Includes: The World of Up Close, \$130; Some Friendly Insects, \$90; Where Does Life Come From, \$90; Let's Find Life, \$110; How Do They Move? \$90; What Do They Eat? \$90; A Time for Rain, \$110; A Time for Sun, \$90; Bending and Reflecting Sunlight, \$90.

RESOURCES

Films - filmstrips

SCIENCE

- 4 WORLD OF NATURE, THE
American Educational Films, 331 N. Maple Dr., Beverly Hills, Co. 90210
1970 9 min each b&w 6-12 & adult each \$100
Unusual presentations for biology classes. Emphasizes correct scientific vocabulary.
Included are: The Mouths of Insects; The Mouths of Animals; The Wisdom of Animals.
- 6 AIR POLLUTION--WHAT IS IT?
AIMS 1 color filmstrip, 1 record 6-12 \$13.50
Data pertinent to discussion of an alarming world problem.
- 2 BOREAL FOREST
Outdoor Pictures 1971 color 1 strip w/tape or cassette 7-up \$13.95
slides 19.50
w/tape or cassette 24.50
The relationship of plants, animals, and the severe environment of the boreal forest
region of arctic Canada and Alaska.
- 4 CHUPAROSAS: THE HUMMINGBIRD TWINS
Lyceum Productions, P. O. Box 1226, Laguna, Ca. 92652
1971 42 fr. 2-10 cassette \$18.00
phonodisc 16.50
Describes a small, hardy species of hummingbird that inhabits the high, windy mesas
of western United States deserts.
- 6 CONSERVATION THROUGH RECYCLING: From Pollutant to Product
Current Affairs 1971 20 min. ea. 7-12 w/2 discs \$15 ea.
Part I, Scrap Iron and Steel; Part II, Paper, Textiles and Other Materials. Shows how
to conserve our natural resources by recycling.
- 3 THE DECIDUOUS FOREST
Warren Schloat 1971 106 fr., 18 min. 6-12 w/disc \$23.00
Explains conditions necessary to support a forest. w/cassette 26.00
- 4 DIVERSITY IN NATURE
Olin Educational Services 1971 5-9 6 strips, 3 discs \$54.00
Includes: Land; Land Changes; Water; Plant Life; Animal Life; Organisms Change.

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RESOURCES

Filmstrips

SCIENCE

- 2 ECOLOGICAL COMMUNITIES (series)
Coronet 1971 color 6 strips w/3 discs \$55.00
w/6 cassettes 70.00
Explores plant and animal interdependence in major types of ecological communities, stressing how life forms within each community are adapted for survival. Includes: The Deciduous Forest; Ponds and Lakes; The Stream; The Meadow; The Thicket; The Northern Coniferous Forest.
- 6 ECOLOGICAL FACTS OF LIFE, THE Parts I and II
Warren Schloat color 13-15 min. 60-70 fr. 9-up disc \$40.00
Ecological problems defined and possibilities outlined. cassette \$46.00
- 2 ECOLOGICAL IMBALANCE: Six Systems Disturbed
Eye Gate House 6 captioned color strips with teacher's manual 7-12 \$35.00
Investigates despoliation and imbalance within the environment caused by man and natures. Includes: Upland Forest; Lowland Forest; Marshes; Grasslands; Streams and Ponds; Tides.
- 3 ECOLOGY AND YOU
Teaching Resources 6 strips K-5 set \$69.00
Young people are introduced to the subject of ecology through identification of basic ecological terms. Include: Earth; Air; Water; Animals; Our World Today; Your Role in Ecology. each 12.50
- 2 ECOLOGY AT TIMBERLINE
Outdoor Pictures 1971 color 1 strip w/tape or cassette 7-up \$13.95
slides 19.50
w/tape 24.50
Intricate relationships of plants and animals living on high mountain slopes and how living things survive the rigors of this severe climate.
- 3 ECOLOGY: Balance of Nature
Marsh 1971 1 strip 15 minutes 4-9 disc \$15.00
Shows importance of preserving wild creatures and their habitats; and the results of man-made controls. cassette 18.50
- 1-6 ECOLOGY: Biology of Nature
Doubleday Multimedia 1971 5 strips with 5 discs and 5 cassettes
Includes: Discovering the Ways of Plants and Animals; Discovering the Many Kinds of Plants and Animals; Investigating the Conditions of Life; Observing Nature's Network; Observing Some Communications of Living Things.

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2 ECOLOGY OF THE TUNDRA

Outdoor Pictures

1971

color

1 strip w/tape or cassette

7-up

\$13.95

slides

19.50

w/tape or cassetted

24.50

The relationship of plants, animals and the severe environment of the arctic tundra in the Yukon and Alaska.

ECOLOGY: Spaceship Earth

Marsh

1971 15 minutes

4-9

disc
cassette\$15.00
18.50

Emphasizes life-support systems of spaceship Earth.

2 HABITAT

BFA

1971

Series of 5 filmstrips

K-2

each \$8

\$40.00

Designed to provide students with reading experiences and at the same time involve them in discussions that will lead to discovery of some important ideas in biology. Includes: Where Do Animals Live? Why Do Animals Live Together? Why Do Animals Hide? What Does Change Do to Animals?

4 HOW FLOWERS TRANSFER POLLEN

Imperial Film Co., 4404 S. Florida Ave., Lakeland, Fla. 33803

7-12 w/phonodisc \$55

1971

5 sound filmstrips

w/cassettes \$64

Photographs demonstrate several aspects of cross-pollination among a wide variety of common and unusual flowering plants.

1-6

INTERDEPENDENCE OF NATURE, THE

Universal Education and Visual Arts, 221 Park Ave., South, N. Y. 10003

4-6

4 filmstrips

Emphasizes the importance of conservation by demonstrating the interrelationships in nature: Includes: The Cycle of Nature; The Balance of Nature; The Four Seasons; Conservation.

1-6 INTERRELATIONSHIP

Olin Educational Services, 460 Park Ave., N. Y. 10022

5-9

6 strips, discs

\$54.00

Includes: The Ecosystem; Soil; Water and Light; Climate; Temperature; Humidity and Wind; Intraspecific Relationships (between same species); Interspecific Relationships; Man's Intrusion on Nature.

4 INTRODUCING INSECTS

AIMS IEF

5 silent filmstrips, color elem. & Jr. Hi

\$42.00

Survey of entomology, anatomy, adaptive abilities, useful versus harmful, etc. Insects shown are common throughout the United States.

RESOURCES

Filmstrips

SCIENCE

- 5 INTRODUCING WEATHER
AIMS IEF 5 silent filmstrips, color elementary \$39.00
Atmosphere, relationships of sun and earth, winds, moisture, air pressure, making forecasts, etc.
- 4 INVESTIGATING INSECTS (series)
Coronet 1971 color 6 strips 4-6 6 cassettes \$55.00 \$70.00
Shows physical characteristics, habitats, ways of living, and explains insects' role in environmental balance. Includes: What They Are; The Different Kinds; Life Cycles; Feeding Habits; How They Protect Themselves; Helpful and Harmful.
- 5 INVESTIGATIONS IN SCIENCE: Earth Science
BFA 1970 5 sound strips 5-8 disc \$45.00
Investigation of the characteristics of the earth's crust. Includes: Water Erosion; Weathering; Soil; Minerals; Humus. cassettes \$75.00
- 5 INVESTIGATIONS IN SCIENCE: Meteorology
BFA 1970 5 strips 5-8 disc \$45.00
Common weather phenomena can stimulate many questions about the nature of matter. Includes: Why Is the Sky Blue?; Water Vapor; Clouds; Pressure and Air Temperature; Precipitation. cassettes \$75.00
- 4 KEYS TO BASIC ECOLOGY (3rd in 3-set series)
Olin 1971 5 strips 5-8 3 discs \$54.00
Plants, animals, and man adjusting to changing conditions. Includes: Adaptation-- Evolution and Natural Selection; Color Adaptation; Functional Adaptation; The Organism; A Bundle of Adaptations; Man, the Adjustable Organism.
- 3 LEAF FUNCTIONS
BFA 5 strips elementary \$35.00
Designed to lead students to discover that leaves serve plants as controls for water content and for the discharge of oxygen and intake of carbon dioxide.
- 6 LIFE CYCLES OF COMMON ANIMALS, Group II
IFC 1971 color 2 strips 5-9 2 cassettes \$27.00 \$29.90
Life cycle of the bighorn sheep.
- 4 LIFE CYCLES OF LOWER ANIMALS
AIMS IEF color 6 silent filmstrips elem. & Jr. Hi \$42.00
Nine examples of ways lower animals grow and develop from egg to adult.

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RESOURCES

filmstrips

SCIENCE

5 LIFE STORY

Teaching Resources

color 4 filmstrips

K-3

w/ 4 records \$40.00
1 cassette \$42.00

The changing face of the earth is seen from its first cataclysmic upheavals through various ages of tiny sea creatures, flowering plants, dinosaurs, mammals, and finally, the works of man.

4 LIVING THINGS

Teaching Resources

6 filmstrips

4-8 3 records or 3 cassettes \$66.00

Introduces the student to the wide variety of animal life on the planet earth. Includes: Reptiles; Winged Animals; Insects; Marine Animals; Land Mammals; Domesticated Animals.

MACMILLAN ELEMENTARY SCIENCE FILMSTRIPS

Macmillan Sets A, B, C, D 1971 color 6 strips each

each \$45.00
series \$180.00

1-2 A--Sun, Moon and Earth; Our Changing Earth; Living on Land; Living on Water; Your Body Needs Heat

3-4 B--Simple Machines; Green Plants; Classifying Animals; Electricity; Light and Shadows; Weather

4-5 C--Patterns of Growth; Physical Properties of Matter; Chemical Properties of Matter;

Investigating the Atmosphere; Flight into Space; Exploring the Oceans

3-5 D--Molecules in Motion; Planets; Light and Lasers; Ecological Systems; Animal Behavior;

How Living Things Change

1-6 MAN AND HIS ENVIRONMENT

NEA

1971 91 fr., sound 15 minutes

Booklet, 56 p.

\$17.00
1.75

Based on five strands and the environmental study areas first developed and tested by the National Park Service.

4 OCEANOGRAPHY

Coronet

1971 6 filmstrips

6-11

w/phonodiscs & guide \$50.00
6 tape cassettes \$ 70.00

Includes: How We Study Waves; How We Study Tides; How We Study Ocean Currents; How We Study Marine Sediments; How We Study Marine Life.

2 OCEANS, THE

Warren Schloat

1971 18 min.

1 strip

6-12

disc \$23
cassette \$26

Describes chemical, physical, and biological interaction of the sea.

1 OUR LIVING PLANET

AIMS

3 color filmstrips

elementary

3 records \$32.50

Develops early appreciation for our environment. Covers water, the land, plants.

BEST COPY AVAILABLE

- 3 PHOTOSYNTHESIS (series)
BFA 6 strips elem. & Jr. Hi. \$42.00
A series of experiments describes the process of photosynthesis. Includes: Chlorophyll; Chlorophyll and light; Sugar and Starch; How Plants Produce Food; Synthesis; Review.
- 3 PLANT RESPONSES TO ENVIRONMENTAL CONDITIONS
BFA 5 filmstrips elem. & Jr. Hi. \$38.00
Includes: Response to light; Response to Gravity; Response to Touch; Response to Temperature Change; Review.
- 6 POLLUTION
HR&M 1971 color 6 strips 4-6 3 discs \$54.00
The most immediate and critical forms of pollution and ways in which a child can help.
- 1 POLLUTION AND THE BALANCE OF NATURE
Avid 2 strips w/ disc 12-18 minutes with guide 1-6 \$18.00
Studies the interdependence of all living creatures and how our air, soil, and water are being endangered by pollution.
- 4 ROLE OF TREES IN THE ENVIRONMENT, THE
Imperial Film Co., 4404 S. Florida Ave., Lakeland, Fla. 33803
1970 4 sound filmstrips 4-8 discs \$44.00
Deals with the relation of trees to the ecosystem. cassettes \$51.80
- 6 SAVING WHAT'S LEFT (series)
Eye Gate 6 strips 7-12 3 discs \$46.00
Studies the ecological dangers facing the world and the need for immediate conservation and proper application of our resources. Includes: When the Grass was Green and the Water Blue; Ill Fares the Land; What is Conservation?; Utilizing Our Resources; Our Human Resources. cassettes \$47.50
- 3 STORIES OF ANIMALS WHICH SHARE AN ENVIRONMENT
IFC 1971 color 4 strips K-5 4 cassettes \$51.80, 12.95 ea.
Presents the ecological principle that an environment may support a variety of life forms which can live in some degree of non-awareness of one another. Includes: The Prawn, the Bear; The Osprey, the Trout; The Swan, the Beaver; The Tanager; the Dipper.
- 5 STUDY OF THE EARTH
AIMS IEF 6 silent filmstrips color elem. & Jr. Hi. \$45.00
Origin and structure of the earth, physical changes and their causes. Identifies metallic and non-metallic minerals, etc.

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RESOURCES

Filmstrips

SCIENCE

- 5 STUDY OF THE SEA
AIMS 6 silent filmstrips color elem. & Jr. H1 \$42.00
Surveys sciences involved. Shows origins of oceans, how waves are formed, causes of tides and currents, plants and animals, etc.
- 4 TADPOLE
Denoyer-Geperert 1971 10 strips color K-3 10 discs or cassettes \$150.00
Set One presents concepts of motion, shape, time and change. Includes: Round Is the Way Things Go; Nothing Stays the Same; A Doughnut Is a Hole With Something to Eat All Around It. Set Two looks at relationships of space and size and concepts of locomotion and direction. Includes: Can You See the Empty?; Up to Here; How Do You Get There?; Finding Your Way; Far Apart.
- 3 THIS UNIQUE BIT OF LIFE: Trees and Our Environment 1 strip, 1 12" record \$18.00
Guidance Associates Upper elementary 1 strip, 1 cassette \$20.00
Describes the critical interrelationship between trees and people and emphasizes their mutual need.
- 2 UNDERWATER ENVIRONMENT
Imperial Film Co., 4404 S. Florida Ave., Lakeland, Fla. 33803 phonodisc \$44.00
1970 4 sound filmstrips cassettes \$51.80
Explores the colorful environment and activities of underwater inhabitants of the coastal United States. Includes: Living Corals, 41 fr., 13.25 min.; Spiny-Skinned Animals, 41 fr., 11.55 min.; Fish in Their Environment, 41 fr., 11.40 min.; Shellfish and Tubeworms, 40 fr., 11.30 min.
- 3 WHAT IS ECOLOGY?
Warren Schloet 1 strip, 18 min. color teacher's guide disc \$23.00
Explains origin, history, and field of study covered by this science. cassette \$26.00
- 2 WHY ANIMALS LIVE WHERE THEY LIVE (series)
Eye Gate 6 strips w/teacher's guide K-3 3 discs \$46.00 series
How each animal feeds, reproduces, cares for its young, is suited to its environment, and its manner of survival. Includes: Sea Gulls; Squirrels; Frogs and Toads; Oysters, Clams and Mammals; Water Birds; Earthworms.
- 2 WILD YOUNG DESERT
Lyceum Prod., Box 1226 Laguna Beach, Ca. 92652 1970 4-6 2 strips, 2 cassettes \$34.16
Emphasizes the effect of water and wind on the desert. Includes: The Making of a Desert; Life Conquers the Desert.

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RESOURCES

Filmstrips - filmloops

SCIENCE

- 2 WINTER IN THE CITY
 EREC 1971 5 strips color 1-4 \$36.00
 Introduces animals and plants viewers might find on a winter hike in the city. Includes: Winter Comes to the City; A Winter Hike in the City; How Plants Live During Winter; Snow and Ice in the City.

- 1-6 YOUNG SCIENTISTS INVESTIGATE POLLUTION
 Society for Visual Education 1971 4 sound strips each w/script 2 discs \$32.50
 Features high school students conducting their own science fair projects which deal with water and atmosphere pollution. Includes: Smog and Plant Growth, 50 fr., 10.40 min.; Air Pollution and Lung Tissue, 52 fr., 12.20 min.; Measuring Water Pollution, 50 fr.; 11.45 min., Fresh Water from the Sea, 47 fr., 12.05 min.

Filmloops

- 2 BACKYARD ECOLOGY
 Holt, Rinehart and Winston Media Dept. 5 silent filmloops color 3-8 ea. \$124.75
 Guide to a child's backyard. Each film reveals a tiny habitat which illustrates the basic ecological principles governing the entire world. Includes: Grass, Leaf Litter; Log; Sand; Tidepool.

- 4 BIOLOGICAL SCIENCES CURRICULUM STUDIES
 Hubbard 8 units 1-10 loops each
 Includes: Evolution, 7 loops, \$155; Diversity and Type and Unity of Pattern, 4 loops, \$90; Genetic Continuity, 5 loops, \$110; Complementarity of Organism and Environment, 9 loops, \$200; Biological Roots of Behavior, 10 loops, \$220; Intellectual History--Engelmann's Inquiry into Photosynthesis, 1 loop, \$22.50; Complementarity of Structure and Function, 2 loops, \$45.

- 2 FRESH WATER ENVIRONMENTS
 Thorne Films 1970 8 loops, approx. 4 min. ea. w/notes color ea. \$24.00
 Various organisms including microcrustaceans, protozoans, and insects observed in detail amidst their natural surroundings. Includes: The Pond Environment--Plankton; Organisms Inhabiting Aquatic Vegetation; Organisms Using the Surface Film; Bottom Inhabitants; The Stream Environment--Aquatic Insects - 1, 2, and 3.

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RESOURCES

Filmloops

SCIENCE

5 METEOROLOGY--CLIMATOLOGY

Thorne Films 1971 14 loops w/notes 8-college 3 ea. \$24.00
Representations of weather patterns and conditions are provided by satellite and land-based photography of various areas of the world in different seasons of the year. Includes: Global Circulation--Summer, Winter; North American Cloud Patterns--Summer, Winter; Northern Hemisphere Cloud Patterns--Summer, Winter.

1 OSMOSIS

Thorne Films 1971 4 loops w/notes 9-up ea. \$24.00
Demonstrates the absorption and movements of salt, starch, and sugar solutions and water through plant cells and synthetic membrane.

1 PHOTOSYNTHESIS

Thorne Films 1970 5 loops w/notes 9-14 ea. \$24.00
Chemical reactions of photosynthesis are observed under various conditions in this series of experiments.

1 RESPIRATION

Thorne Films 10-14
Carefully conducted experiments demonstrate the energy-yielding activities of two different substances.

4 SEED SERIES

BFA 1970 4 loops w/notes 1-6 ea. \$20.00
Identifies the different parts in seeds, presents experiments illustrating the conditions necessary for germination, and shows the actual germination process. Includes: Characteristics of a Monocotyledon; Characteristics of a Dicotyledon; Conditions for Germination; Germination.

4 TERRESTRIAL ORGANISMS

Thorne Films 1970 13 loops 7-14 ea. \$24.00
Investigates the appearance, habitat, reproduction, growth, and other activities of a variety of organisms. Includes: Black Widow Spider, 3 min.; Centipede, 1.13 min.; Isopod, 1.41 min.; Ladybird Beetle--Life Cycle, 3.18 min.; Land Snail, 2.26 min.; Millipede, 2.10 min.; Nematode, 2.19 min.; Opalina, 2.40 min.; Pipeline Swallowtail--Life Cycle, 4.30 min.; Scorpion, 1.43 min.; Tick, 1.53 min.; Trichonympha, 4 min.; Trypanosoma, 2.47 min.

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RESOURCES

Slides

SCIENCE

- 3 INVESTIGATIONS IN ECOLOGY: A Biological Approach (series)
Denoyer-Geppert 6 units, 60 slides each, teacher's guide 6-9
Provides understanding of air and water pollution, overpopulation, extinction of wilderness and decimation of wildlife. Includes: Problems in Ecology; Ecological Populations and Communities; Nutritional Relationships in Nature; Material Cycles in Nature; Food Webs and Pyramids; Ecological Succession.
- 2 PLANT ADAPTATION
Society for Visual Education, 1345 Diversey Pkwy., Chicago 60614
Shows the ways plants adapt to their environment, including poinsettia, cactus, pussy willow, and Spanish moss. \$8.50
- 4 PLANTS THAT DO NOT FLOWER
Society for Visual Education 20 slides w/text \$8.50
Presents the variety and characteristics of such nonflowering plants as slime mold, green algae, red algae, mushrooms, and liverworts.
- 5 WEATHERING AND EROSION
SVE 1970 20 slides, teacher's guide \$8.50
Slides picture various geological features on the earth's surface brought about by weathering and erosion.
- Study Prints
- 4 ALIKE AND DIFFERENT Living Things Series
BFA 12 study prints primary, elementary
Students have an opportunity to observe, describe, compare, and classify some forms of living things.
- 1 DISCOVERING OUR ENVIRONMENT
Coronet 4 units, 10 prints each, teacher's guide \$15 each unit, \$3 for "Survival" series \$58.00
Each print illustrates an environmental concept in terms of air, land, and water, living and non-living things.

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RESOURCES

Study Prints - transparencies

SCIENCE

ECOLOGY (study prints)

BFA

4 units

K-6

Includes: Desert life (adaptations enabling plants and animals to live in desert); City life (plants and animals living in concrete and asphalt structures of modern city); Snakes and lizards (characteristics of reptiles); The Aquarium (plant and animal interdependence).

Tapes

1-6

ENVIRONMENTAL/ECOLOGICAL EDUCATION

Mincom Division, 3M Co.

2-12

9 open reel tapes or 9 cassettes

ea. \$7.95

Includes Habitat--General, Terrestrial; Habitat--General, Marine; Food Chains, Pyramids and Web; Understanding Water Pollution; Stopping Air Pollution; The Pesticide Problem; The Population Problem.

1-4

NEW ECOLOGY--POLLUTION (series)

Tapes Unlimited

10 open reel tapes/ or 10 cassettes \$61.75, \$6.50 each

\$71.75, \$7.50 each

Shows how our environment is endangered by pollution. Includes: Mother Nature; The Atmosphere; The Lake; The Little Pond; The Brook; Two Little Trees; Mollie and the Mosquito; Whopper the Whale; Willie May the Earthworm; Bennie the Bat.

Transparencies

3

ECOLOGY

Science Kit 73050

32 mounts

color

7-12

preview available

\$120.00

Covers ten major areas of ecology, the living and nonliving factors in the environment.

SCIENCE TEACHER TRANSPARENCY WORKBOOKS (series VMI

1971

color

1-8

3 units, 12 transparencies each with spirit master worksheets, teacher's guide. Understanding Plants (1-3);

2-3

Ecology and the Study of Pollution (4-6);

6

Man and His Environment (5-8).

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